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Original Articles

*THE SANITORIUM TREATMENT OF PHTHISIS PULMONALIS.

E. L. SHURLY,
Detroit.

I employ the term phthisis pulmonalis in order to include all the chronic pulmonary affections—tubercular and non-tubercular, excepting asthma, emphysema, neoplasms and cardio-pulmonary diseases.

In approaching this subject, I am well aware that it is at the present time a very popular one with the profession and undoubtedly deservedly so. However, in this, as in all other reigning intellectual concepts, the pendulum of approval may swing too far. I mean by this first, that we may unconsciously be led to advise patients into these institutions who ought to be kept out, and second, we may be led into recommending the erection of too many of them and at improper locations. An inordinate zeal, as you well know, may sometimes lead the most stable of us into following an ignis fatuus.

There is a strong tendency in all human pursuits now-a-days to ignore human experience. Undoubtedly there is valid reason for it in some respects, because experience is simply the result of adjusting our inner consciousness with the observation of the passing external events or phenomena, and the registration of the same, yet an experience which comes of solid ratiocination over the phenomena of cause and effect is often more cogent by far than simple demonstration to the senses. In thinking the matter all over, we are naturally led to cogitate over two or three important questions. First. What are the advantages of Sanitorium treatment? What the disadvantages? Where should Sanitoria be erected and how? What is the real prevalence of pulmonary consumption? How much has climate to do with it? What is best for the afflicted, and for the family of the

*Read before the Wayne County Medical Society, January 15, 1903.

afflicted? To generalize, we may say that there are about four phases to the therapy of Pulmonary Consumption, viz.: The home treatment; the sanitorium treatment; the medicinal and dietetic treatment, and the *free* climatic treatment. But in the management of almost any case, these four phases are usually more or less brought into consideration, and underlying all is the paramount principle of open air exposure with or without exercise, a principle of treatment which is by no means new, but which has of late been brought into prominence again—especially in this country.

The home treatment so-called is preferable—especially with a salubrious environment—for children and the young adolescent. And among the educated well-to-do class of people, during the earlier stages of chronic pulmonary disease, because the patient is free, and his or her pschysic individualism (a thing which influences nutrition largely) can be ministered to or gently disciplined. But later, when the disease has advanced to a condition of septic poisoning, then greater relief may be expected from proper sanitorium life and regulation. Home treatment, even for the class of persons under consideration, in an insalubrious climate is often preferable to sanitorium treatment, when due care is taken to secure a continuous supply of fresh air. For the wealthy, who can have what they desire, there is no doubt that freedom under proper medical supervision in a suitable climate, is better for them than life in a sanitorium. But when the disease is advanced, when the breaking down process is beginning or has well started, then a sanitorium is the best place for them; at the same time their family is relieved of a burden which is well-nigh impossible to carry.

For the poor of any degree, when the disease has arrived at a point rendering the pursuance of the accustomed avocation not only impossible, but very arduous, the sanitorium or canvas hospital is the place for the treatment of the case. This is all the more necessary for the lowly and ignorant who need above all things a certain amount of strict discipline which they cannot get at their homes. Besides this, their homes are always more or less unsanitary and their means for acquiring proper diet (so necessary) are very small, and what they do get is often at the dire expense of the actual necessities of their family. The very best of reasons exist also for sanitoria or hospitals which will admit the very advanced cases of pulmonary phthisis. These cases require a place of habitation where they may receive care and alleviation during their decline, and thus relieve their families of almost an unendurable burden which is lightened only by the ties of kinship and affection.

It should, therefore, be the duty of the hospitals in every large community to provide suitable annexes made of canvas or largely of glass, for the reception of cases of chronic pulmonary diseases.

There is a great aversion now-a-days by all the general hospitals to the admission of cases of pulmonary phthisis or pulmonary tuberculosis, so great indeed that but few will admit such cases at all. This has come about for the most part through fear of contagion, notwithstanding there is no reasonable evidence (excepting in the case of old Blockley Hospital, Philadelphia) that I have seen published, of any cases of tuberculosis having arisen among the patients or attendants of such hospitals from any patient or inmate there, suffering with such affection.

But be that as it may, patients suffering with pulmonary consumption are really out of place in a general hospital if allowed the run of the institution. Regarding this, I believe there is no question. Some years ago I read a paper before the Mississippi Valley Medical Association on this topic based upon a fair hospital experience, in which I called attention to the annoyance arising from the commingling of these patients with those suffering from other diseases. It seems to me, therefore, that there should be a hospital for this class of patients in every large community, attached for economic reasons to one of the general hospitals. These institutions should be provided with conveniences for the admission of any sort of a case of chronic pulmonary disease. Besides this, we should encourage the establishment and support of sanitoria in the several districts of our country, the climates of which are known to be of therapeutic value. For instance, throughout the south and southwest and in the mountainous districts of the east, there are already a good number of these excellent institutions. Among them may be mentioned those well-known in the Adirondack mountains; in Colorado; California; New Mexico; Arizona; South Carolina; North Carolina, and Texas. At Silver City, N. M., there is an excellent one; St. Joseph's, under the management of our accomplished former townsman, Dr. E. S. Bullock, where most gratifying results are obtained.

As you are aware, there is a very general movement in the several states toward establishing State Sanitoria for cases of pulmonary consumption. The wisdom of this movement may be called in question because the establishment of a hospital for treating any class of diathetic disease may be considered out of the line of a state function, and might lead to the abuse of demanding similar institutions for every other class of chronic disease. Although if our system of politics were strictly honorable and patriotic, it would indeed be the proper thing for every hospital and other such institutions to be managed and supported by the state. But alas, with the pulling and bartering from purely personal motives that constitute the mainsprings of our politics, such a thing would only result in an appalling multiplication of iniquity at the expense of poor suffering humanity, as well as the patient taxpayers. Indeed, it would be much cheaper for the state to pay a certain rate to the several local hospitals for the care of these poor patients, and if need be, provide for the migration of some of them to established sanitoria situated in more salubrious climates. The prevalence of pulmonary consumption is still a matter of conjecture, for of course, our vital statistics are probably far from reliable. I saw in the newspapers the other day a statement made by a member of our State Board of Health that there were probably 20,000 cases in this State (Michigan). This would seem to be rather an exaggerated number, although I have no reliable evidence with which to dispute it. In order to get an idea of the approximate number of cases in this city, I sent out to the practitioners here (one to each), 670 postal cards worded in humble phrases as I supposed; asking for a return statement of the number of cases under and over ten years of age which were under the observation of the addressed person at that time. I am sorry to say that I received but 189 replies up to this date. I confess that I am disappointed, because I took the liberty of thus

addressing the inquiry to my colleagues with the most unsophisticated intentions, never dreaming of giving offense, nor of failing to elicit their interest in a matter of such professional importance. However, I received 189 answers. Of these 8 were either absent from the city or engaged in other fields of practice.. Twenty-nine cases under ten years of age were reported, and 362 cases were reported over ten years of age.

These reports included not only pulmonary tuberculosis, but other chronic pulmonary diseases. This would show problematically that if there are only 362 cases of chronic pulmonary disease under the observation of 181 practitioners, including hospital and dispensary cases in a city of this size, that 20,000 cases for the State might be considered a large estimate.

In conclusion, permit me to say that I believe the thorough open air treatment with proper regimen and medication to be the best line of therapy for chronic pulmonary diseases. That in conjuction with this, the Sanitorium habitation allied with some amusement or pursuit for the more active patients, is especially useful to a large class of patients. Furthermore, I am convinced that every general hospital in every large community should be equipped with either glass or canvas houses annexed, for the reception and care of these patients and that provision should be made for the reception of *advanced cases,* as well as those in an early stage of development.

The majority of the Sanitoria, I think, aim to admit only incipient or slightly advanced cases—do not take advanced cases. Indeed the lot of the consumptive so-called is getting hard. The hotels, the boarding houses, the hospitals, even the homes are becoming closed to him. He must soon become a wanderer on the face of earth, with no refuge but the Salvation Army, saloon, or stable, unless our noble medical profession soon awakes from its transient lethargy to assume its wonted courage and philanthropy; and rescue him from the pursuit of that oft-times cruel and unrelenting foe, *public opinion.* We must remember that it was a similar demon—Public Opinion—which in southern Europe, in the early seventeenth century branded "the consumptive" as an outcast, closed all doors against him, "hunted him from pillar to post," and by ferocious mobs drove him to the stable, the kennel and the swamps to starve and famish in terror and agony. From this horrid historical picture of bygone days, we turn with feelings of mingled disgust and pride. Disgust that such brutal, cowardly emotions could ever have swayed a civilized people; and pride, that it was the courage of the medical profession aided by the philanthropic British people, who stemmed the tide of persecution against these poor wretched forms of humanity, and forced their fellows and their governments to again exercise their humane attributes and realize that the poor consumptive, although an unfortune, is nevertheless in common with all of us a creature of the same Creator, and member of that universal league, the brotherhood of man.

DISCUSSION.

EMIL AMBERG, DETROIT.

It seems to me that the doctor did not mention one point in his paper about the sanitarium treatment, and that is the purpose to protect people at home from the consumptive patient. Undoubtedly there exists some danger. Before

the Mississippi Valley Medical Society in Put-in-Bay, a most emphatic statement was made by one of the doctors from the South about the number of infections taking place in his locality. This report will probably appear in a short time, as I understand the transactions have not yet been printed. As a third point, I should like to say that I regard the idea that sanitariums should be attached to general hospitals and should be paid by the state as a movement which should be crushed in the bud, for the reason that it strengthens conditions under which we have to suffer already too much. If the University of Michigan would have control of all of these hospitals, it would be different; and if our state-appointed professors would take care of them, I might agree with it; but I must certainly object to having state money appropriated for private hospitals, and for the benefit of those connected with them.

JOHANN FLINTERMANN, DETROIT.

If we speak about tuberculosis we should start from a basis, and not make any statement which does not mean anything. If tuberculosis is known in its proper nature, certainly if we know the etiology and pathology, it is necessary for the profession to come to an understanding what has to be done and what can be done, and what the state will do and can do. In all the discussion so far I have always seen that the profession in this city stands on a sound basis. If tuberculosis is an infectious disease, if it is in some respects contagious, certainly then we accept such a basis, then we are able to diagnose this question.

As far as a hospital for tubercular patients is concerned, if there is a case of tuberculosis, and you want to treat it, bring the case under the best conditions and impress upon him what he must do from the start if he wants to get better. He must be taught to behave himself so that he is not a danger to the community; and, if he gets better, that he does not lose his chance to earn wages for his family; and for that reason we should bring any patients who are not in a position to help themselves where they can get the best of treatment and most ample means for getting the same. In some countries private authority has taken care of those cases. There have been founded sanitariums for such people; local and charitable institutions have taken care of such patients, and the results have been wonderful. His fellow laborers pay him enough to support his family. The sooner we have institutions of that kind the better it is for these tubercular patients and, at the same time, for the community.

Tuberculosis is the most prevailing disease in any community, and if there is tuberculosis, there is danger that other people will get it, and patients will get better if you put them under proper conditions.

E. L. SHURLY, DETROIT.

I am very glad that Dr. Flintermann could agree with me about the utility of the sanitarium. In answer to Dr. Amberg, I think I mentioned twice that it was also for the benefit of the family that these patients should be removed.

The main point that I wanted to bring forward for discussion was that we should have conveniences at every hospital for these cases, and not rely upon a state institution, and that these places would be open, of course, to any practitioner who wanted to take his patients there. It is the duty of every community to have such a place, because it is a fact that even the suspicious people are being shut out—and I did not exaggerate at all the picture that I drew of the cases as they are growing in this county—that people are not taken in even if they have a suspicious cough. Some of the hospitals, at Louisville, for instance, and the Adirondacks, have people who have no tuberculosis at all but were refused at the hospitals because they were suspected.

It is to the medical profession that I appeal to give this matter the attention it deserves. If it can be proven that every one of these cases are an absolute danger wherever they are, then I say, let us shut them up as we do smallpox. If it is not so, then I do not think that the medical profession should go into any craze following public opinion in doing it. In order to do that we should have these so-called sanitoria everywhere, and not have great big public institutions which shall be a political cess-pool of iniquity for men to hang around who do not want to work. We should have a place for them in every community where they can be taken, and every patient who ought to be immured reached. The question whether it is contagious or not has nothing to do with it. They should be taken care of, taken away from their families and put into proper institutions, and it seems to me that it can never come about until the medical profession shall work for the people in every community and provide places for these people.

*THE NATURE AND TREATMENT OF EPILEPSY.

HERMAN OSTRANDER,
Kalamazoo.

I desire to discuss three propositions bearing on three phases of this subject:

1st. The prevalence of Epilepsy can be greatly decreased by a more thorough appreciation on the part of physicians of the various remote causes of the disease and by educational methods through the various health bureaus.

2nd. The use of nerve sedatives or powerful drugs of any kind to prevent and abort convulsions is in a vast majority of cases unnecessary and irrational.

3rd. Properly equipped and conducted Farm Colonies offer at present the most rational means for the care and treatment of epileptics.

The application of these propositions is not limited to so called idiopathic epilepsy. Strictly speaking there is no such thing as idiopathic epilepsy.

Epilepsy is a symptom of many morbid processes, which create or contribute to the development of an unstable nervous organization from which the malady develops. This unstable condition is either inherited or acquired. The general opinion is that it is usually inherited. I believe that it is more often acquired than has been generally taught, and in many instances from causes that are preventable or avoidable, and that these same causes assist in, and hasten the development of the epileptic habit in those who are pre-disposed by inheritance.

In the consideration of some of these conditions from which epilepsy is frequently developed I would call your attention to the fact that it is often associated with infantile palsy, and is the (1) "outcome of the same cerebral disease that produces the palsy." Now the causes of infantile palsy are often avoidable. A prolific cause of the birth palsies is injury to the brain due to protracted labor. Sachs thinks that if the physician would hasten the completion of labor in such cases by the skillful use of forceps, many children might escape epilepsy and idiocy.

Again the acute infectious diseases are a potent cause of infantile palsy. In many cases a convulsion which ushers in an infectious disease is the starting point of the development of an epileptic habit. We are taught that a convulsion in a child initiating some acute disease is of no more serious import than a chill is to an adult. I am not in sympathy with such teachings. I think that the occurrence of a single convulsion from any cause whatsoever should occasion the gravest concern on the part of the physician and the family because of the possibility of its causing irreparable injury to the brain or whole nervous system. Sachs (2) reports the case of a child who was perfectly normal and vigorous up to the age of fifteen months, when it had a single convulsive seizure ushering in an attack of chicken-pox. The mental condition of the child at once changed and at the age of nine years its condition was that of complete idiocy. When we remember that it is still a common practice among mothers to purposely expose their children to measles and chicken-pox so that they may be done with these diseases while young, and that public sentiment is still intolerant of strict

*Read at the annual meeting, Port Huron, June, 1902.

(1) Sachs' Nervous Diseases of childhood.

(2) Sachs' Nervous Diseases of Children, p. 531.

quarantine measures in these so called harmless contagious diseases, we cannot avoid the conclusion that many epilepsies from this cause might be prevented.

Statistics show that in seventy-five per cent. of the cases the disease begins between the ages of one and twenty. This period just includes those epochs of life in which the normal nervous system is most impressionable. It is also the period of life in which habits are formed, and during which the development and general well being of the individual receive the least intelligent attention.

Statistics also show that about 1/8 to 1/6 of the cases begin before the age of 3. I believe that in the majority of cases the undermining of the general health which constitutes the real commencement of the epileptic habit begins before the age of five. I will briefly call your attention to some of the causes of this condition.

1st. The infant does not receive the proper nourishment. The natural food for the babe is healthy mother's milk. I need not remind you how seldom this is available. The next best food is good clean milk from the healthy cow, so modified as to suit the needs of the age and condition of the infant. This is very often not obtainable. The following is not an uncommon condition of things and is based on personal observation. Cattle are often pastured where only impure and often filthy water is accessible. They are carelessly hurried and worried on the way from the pasture to the milking stables; not infrequently dogs are employed for this purpose. An unwashed milkman takes an unclean pail, squeezes some milk into his hands with which to wash the udder; I have seen him spit into his hand to re-enforce his grip on the undder. If the cow annoys the milker by switching her tail she is either scolded or batted with the milk stool. If a neighboring cow urinates during the process the milk pail is allowed to catch a goodly number of the spattering drops, the milk is poured in an unclean can, perhaps it has been washed in contaminated water, and a portion of it carelessly allowed to remain in the can, it is distributed to customers, the driver sometimes becomes thirsty en route, he relieves his mouth of a quantity of tobacco juice, inverts the cover to the can, draws it partly full of milk and drinks it, replaces the cover on the can. The milk is received by the customer, placed in the same cooler with onions and other bad smelling foodstuffs. The care of the bottle and other receptacles in which the food for the child is prepared is entrusted to the maid or nurse girl who has no conception of absolute cleanliness. It is hastily mixed with the other ingredients with no regard to exactness in the proper proportions, is warmed, bottled, the nipple thrust in the mouth of the nurse or mother to test the temperature, and then given to the child. Regularity in the matter of feeding and in fact, in the attention of any of the habits of the child is ignored. A goodly number of such children die from some bowel trouble. A large number of those who survive pass through a peevish, fretful, sickly childhood, an easy prey to other diseases.

In the city of Kalamazoo, more than half the number of deaths in children under five years of age is from bowel troubles alone. I am glad to say that the health officer of that city has published a pamphlet for free distribution giving simple instructions in the general care of infants during the hot months, the proper

food, its preparation, proper time for feeding, proper care of receptacles for milk, advising the avoidance of drugs, etc.

In cities like Chicago, New York, Rochester and others where instructions of this kind are given and where milk depots have been established for the distribution of sterilized milk, the reduction in infant mortality proves that diseases of this kind are largely preventable.

Now it is pretty conclusively established that gastrointestinal irritations—the absorption of bacterial poisons from bad and undigested food, the irritation from the products of incomplete metabolism and the retention of poisons due to imperfect elimination are among the very potent causes of the epileptic condition.

The most of the convulsions that begin in infancy are the result of rickets, and Gowers (3) says of this that "this condition would certainly not attain to the degree in which it causes convulsions if children were properly fed, and thus a considerable number of cases of epilepsy might, without doubt, be prevented."

Still further mischief to the nervous system is inflicted in neurotic children by the stupidity of the parents who fail to recognize a morbid cause for the habits, peevishness and irritation of the child, and the poor victim is often punished when instead he should receive the attention of the physician and nurse. As an instance of this may be cited the quite common and to my mind, criminal practice of whipping children who suffer from nocturnal enuresis.

I have but to call your attention to the above stated facts and to the fact that epilepsy generally visits the families of the poor and uneducated, to lend force to the suggestion that the epileptic is largely a victim of ignorance.

The remedy for this state of affairs lies in health inspection and supervision, and the dissemination of knowledge in matters of correct living by our various bureaus of health and in more specific and intelligent instructions from physician with regard to the character and preparation of food for the child, the method of its administration, and especially with regard to the aseptic cleansing of the utensils in which milk is kept and from which it is administered. As has already been stated some of the health boards in larger cities are doing excellent work in this line. I see no reason why the function of the State Board of Health should be practically limited to the management of communicable diseases and why so little effort should be made in educating the people in methods of living that will develop in the individual that natural immunity to disease which a vigorous healthy organism offers. The subject of heredity offers a fertile field for investigation which might be taken up for the public good by the State Board of Health. I believe that one of the members of the board should be an alienist. The state of Michigan expends hundreds of thousands of dollars annually for the housing, care, and treatment of its epileptics, feeble minded, and insane. These maladies are essentially incurable and the only hope of checking the ever increasing population of these defectives is by the dissemination of information that will emphasize the evil results of unhygienic living, of unwise marriages, and of ignoring the laws of heredity.

The hereditary factors that enter into the causation of epilepsy are known to

(3) Gowers on Nervous Diseases, p. 732.

all of you. (3) "Syphilis, alcoholism, insanity, epilepsy, and phthisis are found abundantly in the ancestry." (4) The intermarriage of neurotic persons contributes powerfully to produce the convulsive tendency. The elimination of these factors is one of the most serious problems that confronts the sanitarian to-day. The idea, which has often been advanced, of performing surgical operations that will deprive the defective of the power of propagating his kind will never bear the test of public sentiment. The strict enforcement of laws denying the marital relations to these individuals, would exert a most powerful preventive influence. Unfortunately however, public sentiment is not ripe for the adoption of such measures. It seems to me, however, that the outlook is not altogether hopeless. Within my recollection the law requiring the isolation, and quarantine of many of the contagious diseases was a dead letter. At the present time public opinion will not tolerate flagrant violation of these laws. I believe that a wisely persistently conducted educational crusade would arouse the same intolerance to the propagation of degenerates and in the near future public sentiment would demand laws restricting the marriage of those who on examination were found to be afflicted with any disease or condition likely to be transmitted to offspring.

With regard to the second proposition, my observations lead me to believe that the drug treatment of epilepsy is the one usually employed by the general practitioner. Some indefinite instructions regarding diet may be given, but the chief reliance of the average physician is in the powerful nerve sedative. This undoubtedly is not always the fault of the doctor. Generally it is quite impossible to secure the intelligent co-operation of the patient or his parents in matters of regimen, and too, they expect immediate results and are going to employ the physician who can the most nearly meet their expectations. Nevertheless, it is irrational therapeutics. Of course, emergencies like status epilepticus must be met with heroic measures, but the treatment of an instability of the nervous organization with agents whose ultimate tendency is to increase that unstable condition is not based on good judgment. I think that physiologists generally agree that a discharge of nerve force is due to chemical changes in the substance of the nerve cell. This being the case, it is reasonable to assume that in epilepsy unstable compounds take the place in the cytoplasm of the more stable ones that are present in health, and that these compounds are susceptible to explosions from stimuli that in health would produce no symptoms whatever. There is always an inciting cause for a convulsion. Sometimes a mere physiological process will so operate. I once had a patient who often had a convulsion in the morning while on the way to the toilet room to relieve a desire to urinate. We were able to prevent these seizures by having the patient remain in bed at such times and use a bed pan. These inciting causes are very often removable as in cases of nasal or ear trouble, eye strain, hemorrhoids, anal fissures, gastro-intestinal irritation, constipation, the retention of poisons due to imperfect elimination, etc. Aside from the aurae there are very often prodromal symptoms recognized by the patient himself sufficiently long before the occurrence of the convulsion to have the source of

(3) Gowers. (4) Dana.

iritation removed. Even among chronic epileptics in insane asylums, hundreds of convulsions are avoided by the intelligence of the patient, who voluntarily asks for a dose of castor oil or some other laxative to relieve an impacted rectum. Again it is not always advisable in confirmed epileptics to abort an impending seizure. A convulsion often acts as a storm that temporarily clears the nervous atmosphere. The patient who was miserable for some time before, feels like a new being after its occurrence. The indiscriminate employment of the Flechsig treatment of full doses of the bromides, chloral, the coal tar derivatives and other drugs, undermines the general health and hastens mental deterioration. Their effect in reducing the number of convulsions is usually but temporary, steadily increasing doses are required and the withdrawal of the drug leaves the patient more susceptible to seizures than before its administration began. By removing or correcting the inciting causes above mentioned the same result can be attained in the lessened number of seizures and by prescribing fresh air, regular habits, unirritating and easily digestible foods, general tonics, the general health of the patient is improved and fortified to resist convulsive attacks. The proper treatment for the epileptic may be summed up in two words; regimen and discipline. In a large majority of cases it is inadvisable and impossible to apply these measures at the home of the patient, for the following reasons: The presence of the epileptic is a menace to the comfort, happiness, and health of the home; he is by reason of the malady deprived of a normal interest in life and most that makes life desirable; he is socially ostracized and the various industrial avenues are closed to him; he is erratic, a creature of capricious tastes and habits and very often wholly unreliable; if a child he is an object of tender solicitude to his parents who out of sympathy for his pitiable condition often indulge his whims to his great physical detriment; he is the victim of a malady with a most varied etiology and a successful management of which requires a co-operation that the patient is unable or unwilling to give and treatment so prolonged that he is unable to bear the expense. The physician, himself, becomes discouraged with these cases and often is not unwilling to be rid of his patient who sooner or later becomes the victim of the quack and charlatan. Mental deterioration sets in and he becomes a candidate for the insane asylum. Such cases can be properly managed only in some properly equipped, properly conducted institution.

The advantage of hospitals over homes for the treatment of any disease lies in the fact that in the former the physician has complete control of the situation, and things that are harmful are inaccessible to the patient. The habits of the epileptic make it necessary that his whole mode of life should receive the most careful and rigorous supervision, and an institution for his treatment should be prepared to look after almost every detail of the patient's existence; his habits, diet, education, and occupation.

In the opinion of Dr. Spratling of the Sonyea Colony this last is an extremely important part of the treatment, and he has demonstrated that suitable occupation exerts a positive and direct influence on the number and severity of the convulsions.

It is impossible to give in detail a line of treatment that will be appropriate to

all cases; it is the individual rather than the disease that needs treatment. Several institutions, most of them on the farm colony plan are in operation in the United States. The reports of some of these show that they are accomplishing all that could be expected.

The percentage of cures from any line of treatment must ever be disappointing from the very nature of the malady. The results obtained however, in the improved health and greater contentment of the individual, and the relief afforded the home of the patient and the community at large from the distressing and pernicious influences incident to his malady are sufficient arguments in favor of the continuance of these institutions and the establishment of more of them. I am unable to understand why epileptics should be grouped with the feeble minded for treatment as is the case in Michigan. It seems to me that each condition needs the exclusive attention of specialists in its own line. I hope that the day is not far distant when this state will have an intitution solely for the care and treatment of this unfortunate class.

DISCUSSION.

C. W. HITCHCOCK, DETROIT.

I have been very much pleased with the paper and I am glad to hear Dr. Ostrander's emphasis upon the fact that epilepsy is so many times but the expression of nervous instability; I think that that is a truth which is too seldom appreciated as it should be.

The second point touched upon, the danger of the epileptic habit, is important, and if you will bear with me I will briefly tell you of a case which well illustrates this point. It was when I was on the service at the Eastern Michigan Asylum that we received a patient from St. Joseph's Retreat, Dearborn, who brought with him a sort of harness, and we inquired with interest what that was, and he said that he was really dangerous at times and that was a harness which had been made for him and which he wore at certain times, that he had convulsions, etc.—and it was not very long after his arrival before he had a convulsion. He was upon one of my halls and I recall being on the hall and seeing him in a convulsion, but I did not note it more carefully than I would the ordinary occurrences on the hall; it occurred to me afterwards that possibly I might have been a little more observant, and yet I don't know that there was anything to call my attention especially to it. There was this fact, he slid off from a seat, as I recollected it afterwards, on to the floor and the average epileptic does not fall quite so comfortably as this man did. He had convulsions from time to time, and one day he wrote a long letter to Dr. Hurd in which he said he had been a prisoner at the Ohio State Prison at Columbus, and he there had been obliged to work very hard, so he had feigned epilepsy (he had seen cases of epilepsy), and they had applied various tests to him to see whether his epilepsy was genuine or not, and finally decided it was, and he was afterwards committed to some institution as an insane epileptic, and then drifted up to Michigan. He said: "These convulsions are entirely within my control, and to show you that this is a fact I would like to come down and have a convulsion for you." This was a novel proposition and it was accepted, and he came down and proceeded to have a convulsion for the benefit of Dr. Hurd, the superintendent, and the rest of the staff, and his convulsion very closely simulated epilepsy. I recall Dr. Burr saying that after his long experience he thought it would entirely deceive him. There were one or two little minor points which perhaps were not like a true convulsion, but it was a wonderfully simulated convulsion. This fellow said, "As a matter of fact, these convulsions are voluntary and I want to go to the working hall. I appreciate if I was not an epileptic that had control of his convulsions I could not go there, but I have, and I hope you will trust me," and he was sent there and went out regularly with the working party and eventually was discharged and afterwards secured a position as a sailor on the lakes. He was on a sailing vessel, and was sent aloft one day and actually had a convulsion and fell to the deck. Now that man acquired the epileptic habit, and his acquisition of the epileptic habit, although voluntarily made, so upset his nervous equilibrium that afterwards he became a confirmed epileptic. I believe that man walked de-

liberately into a great danger and acquired the habit, and it passed beyond his control..

I am also much pleased with Dr. Ostrander's emphasis upon the hygienic and rational treatment of epilepsy.

*SOME UNSETTLED POINTS IN THE CONSIDERATION OF TYPHOID FEVER.

HOMER E. SAFFORD,
Detroit.

When one assumes to speak of things regarding medical science and practice as settled in any sense in our day, he is and should be treading on uncertain ground. It is only relatively speaking that our problems are or can become, in any general way, closed to discussion and question. Recognizing that many aspects of our knowledge of the subject of typhoid fever rest as yet upon insufficient data for final determination, I wish to choose for our present consideration only those which, in the professional mind, are perhaps the source of the widest differences of opinion.

In the first place it is well to call attention to the absolute futility of one man's hoping to settle any of these great questions out of his own experience, no matter how wide his field of observation nor how great his acuity of interpretation. A case in point is that of Wilson and Salinger who, writing in the Philadelphia Medical Journal for 1900, reported 1904 cases of typhoid fever with a death rate of 7.5 per cent. As a matter of interest, the same cases were tabulated in shorter series and, although the conditions and treatment were as nearly the same as they could be made, it was found that the rate varied all the way from nothing up to 18.4 per cent. And yet many of us fail to see how narrow, of necessity, is the individual point of view. On the other hand, these same facts point to the absolute need of having the individual report accurately and honestly the little he may see.

The more important points in the consideration of typhoid fever which, in the professional mind, are not generally settled, are, I believe, the questions of the diet, the bath, and intestinal antisepsis, on the side of treatment, and the value of the laboratory methods of diagnosis. An old question, which in some quarters is still controverted, is that of the combined infection of typhoid fever and malaria; and still another, which within recent years is attracting attention, is that of the most common avenue of transmission of the infection from the typhoid patient to his neighbors.

1. Of the *diet* it will be safe to say in the first place that recent tendencies are toward a more varied and liberal feeding. Here, as so often happens, the pendulum is swinging toward the opposite extreme and from many quarters there has come a protest against the exclusive liquid diet so largely insisted upon until recently. This protest arose originally from the restriction being narrowed down to milk as the only suitable liquid. That milk has been and can still be used successfully in the management of typhoid fever is not to be denied, but the indiscriminate and even careless manner in which it is sometimes prescribed has largely been the cause for its loss of favor. That it contains the essentials of a simple food is certainly true; but when two quarts or more of full milk a day, without dilution and without regard to the conditions of digestion, perhaps without even ordering

*Read at the meeting of the Wayne County Medical Society, November 6, 1902.

the mouth to be washed after taking, are poured into the stomach, would it be any wonder that this or any other food were not tolerated over a considerable period without protest? Many of the Germans still adhere to this diet and do so with success in their treatment, and it is, I believe, because they know how to administer it. We hear much about curds in the stomach and the furnishing of a medium for bacterial growth, but a reasonable oversight of the case ought to minimize the weight of such objections.

Having then admitted that even an exclusive milk diet can be managed so that the patient can do well, and a reasonable assurance of recovery be furthered under it, we may observe that the reports of recent years indicate that even better results are obtained by less rigid, or at least more varied, diet. Curschmann, in his exhaustive monograph in the Nothnagel Cyclopedia, states the moderately conservative position that is now very generally held by the profession. Eichhorst and others still adhere to the exclusive milk diet, but the idea is undoubtedly being abandoned. Curschmann's recommendations may be summarized by the following quotations from his work. "Although some physicians advocate an almost exclusively milk diet in cases of typhoid fever, it may be objected that not many patients care for it for any length of time and a still larger number do not bear it." "Carbohydrates in the form of mucilaginous soups, meat broths prepared at home, gelatinous substances, e.g., calves' foot jelly, and eggs, with caution, may be added." "The desire of the patient for greater variety should be restrained until the end of the first febrile week." "From the 6th or 7th febrile day, soaked zwiebak or soft boiled egg and finely scraped raw fillet or salmon; then roast young fowl, squab, chicken, or partridge, at first in the form of purée added to soup; then finely divided, without fat sauce; next mashed potatoes or well stirred rice, and with the meat some crust of roll or toast may be permitted. These articles may soon be followed by light fish, especially trout, boiled in salt water. After this, scraped, slightly overdone fillet may be given, and all these are followed, at the end of the second, or the beginning of the third afebrile week, by broiled, lean, tender pieces of meat, veal or mutton cutlet and fillet of beef, young game, hare or venison. In the course of the third week resort may be had to light vegetables, asparagus tips, purée of green peas, carrots, artichokes, and the like. Apple sauce and other stewed fruits are allowed, but uncooked fruits should be withheld for a long time." This represents in brief the diet as recommended by the more conservative, those who, while adhering to a liquid diet during the febrile stage, break away from it only gradually during the following three weeks.

In somewhat decided contrast to this plan of management, I wish to point out what seems to be a growing tendency as indicated in the literature of the past five years. In this connection, one of the earliest reports to come under my notice was that of Bushuyeff, a Russian, whose observations were reviewed and favorably commented upon by Thayer, of Johns Hopkins. Bushuyeff had arranged the conducting of parallel series of cases in the same hospital at the same time. The one fed upon an exclusive milk diet with the exception of one or two eggs, soft boiled or in a cognac mixture, was under the direction of a colleague who doubted the wisdom of more liberal feed-

ing. "Bushuyeff's patients," according to Thayer, "were allowed usually 715 grammes of bread, 170-180 grammes of boiled meat, a cutlet, and soup. If possible, there was given in addition a small quantity of supplementary milk and egg. The patients of both departments were allowed tea, wine and water. The following extracts from his table show the result:

	On milk diet.		On liberal diet.	
Whole number of patients		74		80
Recovered	(87.8%)	65	(90%)	72
Days on which recovery was complete		55		49.5
Number of days spent in hospital		49.2		42
Days of fever in hospital		22.3		18.9
Died	(12.1%)	9	(10%)	8.9

Thus, in every count, the result was in favor of more liberal feeding, although, as the author points out, he was working in a military hospital where the choice of food was not great and often not inviting. Thayer quotes the author's conclusions in regard to the results above cited, which were those for 1895-6. "Not allowing myself to jump at rash conclusions, I will restrict myself to this alone, that the outcome and course of typhoid fever with a hospital diet as general as possible is not in the least worse than with a restricted diet." During 1897 he lost, under this diet, 26 out of 318 patients, or 8.2%. And the author further strengthens his position by citing the mean death rate for the ten years including the years in which these observations were made. This mean is 12.4%.

Much stress is laid upon the improved general appearance of the patient and it is urged that the feeding should take careful account of the patient's likes and dislikes. It is pointed out that intestinal hemorrhage, both as to occurrence and fatality induced, was below the average given as a reasonable expectation by statistical inquiry, and other sequelae were not more frequent. The "typhoid state," it is claimed, becomes rare owing to the better general nutrition of the patient.

When this report first appeared, I read it with curiosity rather than commendation and felt much as Packard of Philadelphia, who, writing the following year of the same subject, said: "While I would gladly feel justified in increasing the diet of my typhoid patients, I have not as yet the courage to depart from the rule so long established, of giving only liquid diet until the temperature has reached the normal point for several days." And the idea of giving anything but liquids to a patient at the height of the fever would have struck most of us as little short of startling not many years ago.

As for myself, I will say that my own idea of liquid diet has always included such semi-solids as junket, simple custard, and ice cream, and where milk has been poorly borne, I have sought variety by a considerable, even at times almost exclusive, use of fruit juices until the appetite called for something more substantial. In short I have always aimed to keep in mind the assistance that normal appetite can give; and this is, I take it, the controlling principle in all the experiments that are leading to still greater variety in the food allowed.

In the British Medical Journal, for 1897, Barrs, of the Leeds General Infirmary, wrote "A Plea for a Less Restricted Diet in Typhoid Fever." Reporting his experience, he generalizes as follows: "Whenever a patient suffering from en-

teric fever can take solid food, I give it to him. That solid food, when the patient's appetite and digestion permit him to take it, is deleterious in the presence of pyrexia, I am unable to believe." * * * "In regard to relapse being caused by solid food, I may state my utter disbelief." * * * "When a patient suffering from typhoid fever expresses a genuine desire for solid food, and his expressed desire is confirmed by his physical condition, I give him such food as he can take, especially meat. I do not suggest, much less insist, that a patient with a dry, baked mouth, semi-delirious, and probably loathing even milk, should be fed upon beef steaks. Such a proceeding would in my opinion be as ridiculous and unjustifiable as to insist that a man, with a clear mind and a full appreciation of his condition, who says he is craving for solid food, should be refused it."

Also during 1897, Shattuck of Boston, reported his own work in this line and in conclusion stated his belief, as he said, in "treating the patient rather than the disease." The limits that he laid down, in restricting diet for typhoid in ordinary cases were simply that the food should "leave no irritating residue" and that it "be digested without disturbance or discomfort." Besides all the variety that is possible in a strictly liquid diet, he made use of "eggs, finely minced lean meat, scraped beef, the soft part of raw oysters, soft crackers with milk or broth, soft puddings without raisins, soft toast without crust, blanc mange, wine jelly, apple sauce, and maccaroni."

I am indebted to Packard, in his review of the literature of the subject for 1901, for calling attention to a number of articles in support of the idea of more liberal feeding, which appeared during the year preceding. I will quote his own expression of opinion, as changed during the same year from that which I have already quoted. His observations were made upon cases under his care at the Pennsylvania Hospital. He adopted the plan of giving junket, ice cream, plain egg custard, and soft-boiled egg "as soon as the patient expressed an eager desire for food." "After 48 hours of this mild increase in the diet list, very soft milk toast and rice pudding were added and, within a day or two after the fall of the temperature to normal, the patients have been allowed to eat chicken, boiled rice, and bread and butter." He concludes that, from his experience, which he modestly says is limited, "the patients on getting up from bed certainly seemed stronger and more vigorous than is usual on a more restricted diet and they were capable of an earlier return to work."

A carefully observed set of series of cases at the Massachusetts General Hospital, under the care of Fitz and Shattuck, is also reported showing not only that the more liberal feeding was attended by a decided decrease in mortality over that of the periods when strictly liquid diet and when strained proteid and amylaceous food were administered, but also that intestinal hemorrhage was likewise less frequent.

Packard's review also cites the work of Morehouse, at the Lakeside Hospital in Cleveland, and of Morris Manges of New York, both supporting the main contention, that more liberal feeding is attended with reduced mortality and no greater danger of complications. Finally Marsden of Manchester, writing in the London Lancet for 1900, reports that the same line of treatment was attended by the same results in 200 observed cases.

Hemorrhage and perforation were not a feature in this series.

II. Of the *bath* in typhoid, there is reason to believe that, so far as the average case is concerned, the opponents and the adherents of the Brand method are seeing each other's point of view and will eventually become reconciled by a compromise upon the tepid bath. In cases of hyperexia, it may be different, but it is true that not so much is being thought as formerly of the fact of merely lowering temperature. The aim is becoming rather to control the nervous, and through this the excretory and circulatory functions. It is even more than probable that, by the same agency, we are adjusting the function of heat regulation by giving the nerve centres a necessary stimulus to more nearly normal action.

It has come to be admitted that, with the lower temperatures sometimes thought necessary for the bath, the percentage of cases showing intestinal hemorrhage is increased. This naturally is less apt to occur if the bath at 80 F. or higher is used, and the good effects seen to follow are essentially the same. Many patients, owing as much as anything to the interference of friends, think they can not endure the greater degree of refrigeration and the physician feels that compromise is the only way out of the difficulty. In the face of these conditions, it is my experience that the plunge at 85 F. or even 90 F. is more satisfactory to both physician and patient than any of the substitutes suggested. A great deal of pity is lost on typhoid fever patients by their friends (and sometimes by their physician) in this particular, as one may know when he finds his patients asking to have their plunge bath continued after the temperature indications have really been removed.

The degree of skill necessary to nurse a case in which the plunge bath is employed is no greater than without it. The most important instructions aside from a reasonable attention to the circulation are to keep the head cool and to keep the body feeling as warm as possible by gentle but deep massage to the back, chest, and extremities. Even nurses of average skill will sometimes polish a patient's skin into an active furunculosis, if not cautioned as a matter of routine.

I am personally satisfied with the idea of giving the patient the privilege of stepping into his bath himself. It has a good mental influence.

III. *Intestinal antisepsis* is carried out nowadays on more rational grounds than was true not so very long ago. It must be recognized that, in the state of fever with disordered secretions and with the body so long kept in a state of inactivity, the fact of increased fermentation, with gas and ptomaine formation, is not to be forgotten, since it may decidedly affect the prospect in the case. Probably even the Eberth bacillus, so far as its growth may still be continuing in the bowel, may in a measure be affected, but it offers little hope of hitting the mark when we aim antiseptics at this organism, if we consider that the rose spots are now definitely known to be attended by a localization of the infection already generalized.

The effort of intestinal antisepsis may well be begun, I believe, by emptying the bowel with an initial dose of calomel but after the first this agent should not be employed, since the salines accomplish the same with less active peristalsis. A reasonable degree of rest of the bowel is desirable and an occasional dose of Hunjadi water or of effervescing phosphate of soda will usually be sufficient. These measures

are directed toward asepsis by mechanical means. The actual effort to combat germ-growth in the intestines by antiseptics should take account very carefully of the condition of the kidneys; many of the means employed with that end in view are largely excreted by this avenue and might, in some cases, do more harm than good. The routine administration of such drugs sometimes, I believe, prejudices the best interests of the case by their effect upon the stomach. Nothing to my mind should be allowed if possible to interfere with a healthy, normal desire for food.

IV. In connection with the laboratory diagnosis of typhoid, it is necessary to speak of two methods as having special significance. These are of course the reactions of Widal and of Ehrlich.

"Ehrlich's diazo-reaction," according to Simon as expressed in his Clinical Diagnosis, "was at first overestimated but at present is certainly underestimated." It was thought at first to have a more definitely exclusive relation to typhoid fever than a study of the facts has justified; but when the profession realizes that here as elsewhere scientific medical practice offers no methods that are to be used, without judgment, as short cuts, the reaction will be found of decided value. It should form a regular part of the routine examination of the urine; it is so simple that the time taken is no objection to it and, when the reaction is found, it may not only give evidence in the way of diagnosis but in many cases also aid in prognosis as well. During the attack of supposed typhoid, it should be watched for in the early days to establish or confirm the diagnosis; and in the same disease a late appearance and persistence of the reaction point to an acute tuberculosis. If the appearance has been in the first or second week of typhoid and soon disappears, the prediction of a favorable course is made with greater safety. The average date of appearance is the 5th or 6th day of typhoid, but there is considerable variation. It should have disappeared by the 22nd day. The reappearance of the reaction after disappearance for a time, may help to determine the question of relapse as distinguished from the fever of complications.

Besides the presence of this reaction in typhoid fever and tuberculosis, its occurrence in the exanthemata, especially measles, and in pneumonia is not to be forgotten. This fact is responsible for the neglect into which the test has fallen, but that neglect is about as reasonable as it would be to discard the clinical thermometer because its showings were not pathognomonic.

V. Of *Widal's reaction* of the blood there is less question in the professional mind as to its value, but it must be recognized that even here we are dealing with no iron-clad certainty. While Widal himself at first thought the reaction would appear during the first week of every case of true typhoid, there have been a few cases in which, although carefully watched for, it did not appear at all. The explanation of this fact, as indeed of the reaction itself, rests upon somewhat speculative grounds; but recent research has demonstrated the presence of special, so-called "paracolon" and "paratyphoid" infections in a few at least of the cases in which the reaction to Eberth's bacillus fails. And, in these peculiar cases, the patient's blood has already been frequently shown to react, in even high dilutions, to cultures of the particular germs involved.

In the ordinary observation of cases of typhoid fever, the reaction is expected

between the 5th and 10th days and the test should be carried out repeatedly where a diagnosis is made contrary to the evidence shown by the reaction or its failure. With all allowance made for the few cases that do not react, observers agree that the proportion of such is so small that the practical value of the test is little affected by it. Of somewhat greater importance is the fact that in some cases the reaction is delayed. Gwyn, in the Johns Hopkins Hospital cases, reports the reaction as late as the 22nd, 26th, 35th and 42nd days, but these again are exceptional. It is a safe conclusion from the work on this subject that 97 per cent. of all cases can be shown, at some time in their course, to react to the regular typhoid culture; and, with reasonable diligence, this proportion need not be greatly reduced in actual practice. Curschmann says that he has seen but two cases, shown by autopsy to be typhoid, in which careful observation did not detect the reaction.

It is known that the length of time over which the blood of a patient may continue to give the reaction is extremely variable. While the power of the blood to react is gradually lost and ordinarily disappears altogether by the end of the third month, cases are reported in which the persistence has been remarkable, even reaching, in one reported case, the limit of 37 years. This condition must be taken into account in diagnosing typhoid fever in the same individual in any later attack suspected.

The reaction does occur in some cases undoubtedly not typhoid, especially when the degree of dilution of the serum with typhoid culture is low; but in case of doubt, the use of higher dilution will, in any event, lead to greater, if not indeed to absolute, certainty. Again the time limit of the reaction is to be considered. For more accurate work, most authorities advise a dilution of 1:50 up to 1:100, with a time-limit of one hour, and where any question of the clinical appearances arises this standard should be taken; but in the work of ordinary practice, especially where a well-equipped laboratory is not at hand, it becomes necessary to resort to the method by means of the dried blood specimen. This, scientically speaking, is a makeshift, since the question of the dilution can be only imperfectly estimated; but the results, even though of less weight, are of practical value, as shown by the extensive use that has been made of the method. If its limitations are recognized, it may be used with safety.

VI. Recent researches as to *how* the Eberth *bacillus* is *most apt to leave* the *body* of the patient indicate that, after the beginning of the third week of the disease, relatively few, if any, typhoid bacilli remain in the stools. About this time, however, in a considerable proportion of cases, from 20 to 30 per cent., there is a more or less pronounced elimination with the urine, and this fact becomes of great importance as bearing on the question of the spread of the disease. Earlier statements that the urine did not ordinarily contain the bacilli, depended upon observations made earlier in the disease and so, although the observations were in both cases truly reported, the apparent contradiction arose.

VII. Finally, it would seem hardly necessary to mention the subject of "typho-malarial fever" did we not hear it spoken of by those who should know better. The superstition of the "little malaria" that "almost became typhoid" is legion and can only be uprooted from

the popular mind by letting it be known that we have objective tests for both the infections concerned. The extensive research upon this subject has thus far found very few cases that show both infections in the same individual. That such a combined infection is possible is not by any means denied, but the fact should be held up to be understood of all, that, as a commonly prevalent condition, it simply does not exist and that the two infections are not known to have any essential relation to each other.

DISCUSSION.

F. W. MANN, DETROIT.

There has been a great deal of change in the directing of diet, and physicians are gradually beginning to know that the mixed diet is what the patient does best on. Milk, properly used, is, undoubtedly, still a valuable food. A few years ago everybody had to be plunged into a tub. Now we manage the case according to our circumstances and according to the requirements of the disease. In regard to intestinal antisepsis, the question is about as unsettled as it was 18 years ago. In the first place, we have not decided by any means that typhoid fever is an intestinal disease. We have not determined whether the ulceration in the intestines is the result of the primary infection or a terminal expression of the infection, and there is a great deal of evidence in favor of that. Cole, for instance, finds 75 per cent. of his cases to show the typhoid bacillus in the blood in the very early condition. More conclusive still, perhaps, are the autopsies of Flexner. He has made autopsies that have been dead from typhoid, and found no ulcerations whatever. Another observer found the presence of bacilli in 60 per cent. of his cases. I believe that we should consider typhoid more of a glandular disease than an intestinal disease. In regard to laboratory diagnosis: Here we have, of course, a very valuable adjunct to our diagnosis equipment. We have the Widal test and the diazo-reaction, both of which are very reliable. If we can get the Widal on the 6th we know that we have a case of typhoid fever. In getting the Widal we ought not always to say that we have typhoid. My experience in the last two weeks has been peculiar. A case came with a little fever. I had the blood tested according to the routine. It came back to me from our clinical laboratory, and there was a very distinct reaction. Patient was put in bed and treated as a typhoid patient for a few days. Finally she refused to lie in bed and got up, and is now well. In regard to the doctor's remarks as to how the bacillus leaves the body, he evidently favored the idea that the elimination of the microbe was through the kidneys. It is undoubtedly true when the disease has become practically a constitutional affection, but I believe that some cases of typhoid do not get to that condition. I believe the bacillus is destroyed wherever it is. I would say that it left the body by a process of its own.

In the Spanish war, where there was such an abundant opportunity for having typhoid malaria, there was practically no typhoid malaria, any more than could be by general infection. In regard to para-typhoid, we come to an important point in regard to the diagnosis of these intestinal parasites. It is rather confusing. Here we get a disease which has all the clinical manifestations of the typhoid; it has the tongue, the temperature, the rose spots, the myositis, etc., and yet it is not typhoid, because it would look almost as though we shall simply make a little bacteriological differentation of these things, and that this affection which will respond to clumping reaction of Gwinn will be thus differentiated from the typhosis infection.

H. W. LONGYEAR, DETROIT.

One point: this question of milk feeding. I have had some experience in excavating the rectum from great masses of casein which have come on account of milk diet. One case of typhoid—the case had recovered—a young woman. I was sent for by a physician, who said she had a tumor of the pelvis. The odor was something terrible. Asked what was the cause, and they said it was the discharge of the tumor. I examined the anus and found much the same appearance as when the head of a child is presenting low down in the cervix which is well dilated with very thin lips. I found a round, presenting mass almost as large as a child's head, and from the anus was coming this terrible discharge. I took the handle of a large, iron spoon and soon delivered the tumor by piecemeal. I have seen that occur at other times, not perhaps in such a degree as this one, but I believe it is due to the improper

use of milk diet. The consequence has been with me, since these experiences I have steered clear of milk diet, and I believe that baths and mixed diet serve all the purposes and avoid that occurrence. I think when milk is given it should be in connection with saline laxatives.

C. G. JENNINGS, DETROIT.

I think upon the question of diet that the doctor has reviewed the subect very well, and I must protest against the wholesale condemnation of milk as an article of diet in typhoid fever, simply from one or two exceptional experiences, based upon, in all probability, improper administration of the food. I think it is irrational and unscientific. A diet should be a scientific thing, and partcularly the diet of typhoid fever; and in selecting a dietary it should be selected upon scientific principles—that is, upon the tissue-building and energy-producing value of the food. Dr. Longyear said that he would substitute broth for milk. How much broth will it take to equal in tissue-producing and energy-producing qualities a pint of milk? It takes about six. Broth contains practically all proteid, and is a very one-sided food. It is itself of value, but as a substitute for milk it is ridiculous. If patients live through typhoid on fruit juice and broth and things of that kind they live because they thrive upon their own tissues, and not because of the food that was introduced into their stomachs. The caloric-producing value of a pint of milk is 425; of broth, about 50. We forget, I think, the value of the carbohydrates in febrile diet. We are apt to push proteids to an unnecessary extreme, thinking, perhaps, that we may save tissue destruction. Tissue destruction can not be saved. The toxaemia destroys tissue, and this destruction cannot be prevented by any method of dietetics. We must expect that as one of the necessary parts of typhoid fever, so that it is unnecessary to administer proteids with the idea that we are going to prevent tissue destruction. We give proteids up to a certain point. They should furnish only a small percentage of the total energy that is introduced into the body. We can with very great value substitute the carbohydrates, and one of the most valuable carbohydrates is one of the sugars and the starches. An ounce of sugar of milk given to a patient will produce just as much energy as one ounce of dry albumen. The albumen has only an energy producing power. An ounce of a grain introduced in the form of a gruel has the same energy producing value as one ounce of dry proteid. That would represent five ounces of meat. One egg, which is very easily introduced into a fever patient, produces 70 or 75 callories. One ounce of bread will produce about 125, and by thus selecting articles of diet with reference to their caloric producing power we can give to our patients a rational diet and one that will save them from wasting and one that can be digested. A febrile patient must take a food up to about 1500 to 1700 calories, to get what is necessary for his reasonable nutrition, and in order to get this we have to get in a good deal of food. We can not always do it. Conditions are sometimes against it, but where it is possible we should try to approximate to that point. My own experience with milk is that it is, as a rule, when properly given, the best article of diet for typhoid fever. Infants of from two to five months digest cow's milk, and perfectly, many times. We do not give it, though, undiluted. We give it properly prepared.

JOS. SILL, DETROIT.

Laboratory men for years have been trying to find some means of distinguishing a colon from a typhoid bacillus. They have many differences, but as fast as some distinguishing point has been found, it has been found that in many cases it would not apply. The presence of the intermediate forms would seem to indicate that we are dealing not with two distinct types but with a large family which differ in small things. Their growth may be the same, their motility, and they will differ in some point, as the reduction of acid or reduction of certain sugars. One of the most valuable methods of differentiating these allied forms has been by the clumping reaction. With the Widal reaction, typhoid will, of course, be clumped by serum in various dilutions. If the dilutions are raised it is found to exclude all but the true typhoid. On the other hand, the serum of patients suffering from these allied infections will clump cultures of the bacilli recovered from their blood or urine or early discharges. That seems to offer a very valuable method of distinguishing.

There is still a point that is not cleared up, that of the delayed Widal in true cases of typhoid, as Dr. Jennings has said. I have made a number of tests for him and found negative results until very late in the disease.

A. E. GURD, DETROIT.

There are three points that I should like to call attention to. One point was in regard to feeding, especially in the later stages. In a large experience I came to the conclusion that the later stages, particularly, were sometimes much

in the same condition as in infants who have a high fever from want of food. I think in those cases it is necessary to begin mixed feeding. In regard to bathing, especially of children, the public in general are alarmed at the baths, but I have found that they are the ones who stand them best and really call for the bathing. Another point is of interest, I think; it is in regard to the bacilli in the urine. I think the laity, as a rule, are not aware that the urine is as infectious as it is. The bacilli remain as late as three months after the patient is perfectly well.

C. W. HITCHCOCK, DETROIT.

One thing that has appealed to my patience, or to my impatience, has been the readiness with which milk has been condemned as an article of diet, simply because, in the process of its digestion, it is prone to form hard curds in the stomach. The explanation is so readily made that these curds must form cultures for the bacteria. I have heard two or three papers wherein milk has been condemned very severely on these grounds, but with these objections only as glittering generalities. None of these papers have adduced any evidence to this effect. As far as conditions go there is little or no proof that these curds have been found the abiding place of extraordinarily large colonies of germs, which would be the case if these objections were tenable. I have been very much struck with the frequent occurrence in some parts of the country of a type of fever which seems to be well substantiated by very intelligent men, and yet where the course of the disease has been so remarkably short as from two to three weeks.

H. E. SAFFORD, DETROIT.

I wish in closing to emphasize the point in regard to the laboratory methods, that we are not to expect any of our signs, even clinical, to be strictly pathognomonic. Neither the rose spots, the characteristic fever curve nor the enlargement of the spleen, can lay any claim to such infallibility. Every sign is of value by just so much as it raises the degree of probability that the diagnosis is thus and so. Horton-Smith, in the Goulstonian Lectures for 1900, advised the routine use of a 1:20 dilution for the Widal test because, he urged, if we use 1.100 in all cases to start with, we shall exclude a considerable number which, though really typhoid, do not acquire this degree of agglutinating power. On the other hand, it is always best to make the test in higher dilutions to add a greater certainty. The dilution of 1:20 with a time limit of one hour, he considers a safe standard for routine work.

As to paratyphoid cases, we must recognize that, with the testimony of the immense amount of work which is being done on the subject, the fact seems certain that only 3 per cent. of typhoid cases fail to give the reaction; and, of those that do fail, by no means all can be classed as due to paratyphoid infections. Hence we must conclude that in some very small proportion of real typhoid cases the agglutinins are not elaborated. This is borne out by experimental evidence in the cases I refer to by demonstration of the specific lysins, which protect from the infection with Eberth's bacillus, even though there be no agglutination.

Dr. Mann evidently thought I referred to the elimination of the bacilli from the urine as related to that of the whole infection. I wished rather to call attention to the relative danger to the community from the infection eliminated by the different avenues. In the first two weeks doubtless the stools do present the greatest danger, but in 20 to 30 per cent. of cases, the patient's urine is, as I have said, the more threatening one and the use of a urinary disinfectant, as approved by Horton-Smith, is certainly indicated.

Dr. Gurd's mention of the value of the bath in children, as controlling the nervous symptoms, would naturally call to mind the demonstration of the same influence in controlling, by the same means, hysterical attacks in children.

*SOME POINTS IN THE DIFFERENTIAL DIAGNOSIS OF CANCER OF THE STOMACH.

COLLINS H. JOHNSTON,
Grand Rapids.

It has long been known that in cases of cancer of the stomach in which free Hcl. is absent, lactic acid is very generally present, yet for many years too little weight was laid upon this fact, for it was thought that lactic acid was always freely present when Hcl. was wanting. Boas was the first to call attention to the fact that in cases of gastric car-

*Read before the annual meeting of Michigan State Medical Society, Port Huron, Mich.

cinoma, with very rare exceptions, Uffelmann's test for lactic acid gave an intense reaction, while in every other stomach disease in which the usual test breakfast was used, lactic acid was absent or present in very small amounts only, quite insufficient for the production of a positive result with Uffelmann's test. For the securing of this intense lactic acid reaction, stagnation of the stomach contents and permanent absence of free Hcl. are necessary. If only one of these is present, as is frequently the case in dilatation of the stomach, or chronic gastritis, the reaction is not secured. The presence of lactic acid in considerable amounts points to fermentation, hence it is associated with lesions that are accompanied by motor inactivity of the stomach.

Not all cases of gastric carcinoma are accompanied by stagnation of stomach contents and fermentation, and there are on record cases of cancer of the stomach in which repeated examinations have failed to find lactic acid. They are the ones in which Hcl. is always present, which seems especially to be the case in cancer developing on the site of old ulcers. The amount of Hcl. acid depends largely upon the degree of gastric catarrh present, and as the new growth usually excites more or less chronic gastritis, Hcl. is usually absent. Lactic acid is commonly present even in the earliest stages, and, in the great majority of cases, in large quantities, and when associated with the absence of Hcl. is very diagnostic.

But we must not forget that lactic acid is not in itself a *specific* sign of cancer of the stomach. It is frequently found after a meal of meat, and sometimes after the ingestion of milk, saurkraut, salads, etc. It may occur in chronic catarrhal gastritis, though very rarely after a Boas meal. In cancer of the stomach, however, it is a most common objective sign. It may be detected months before a tumor is palpable. Therefore, in a stomach case which you suspect to be cancerous, if stagnation of the contents and constant intense lactic acid reaction and permanent absence of free Hcl. are found, the diagnosis of cancer is almost positive.

Case I: Man 55 years of age with a history of chronic gastritis extending over a period of several years, such as cramp like pain in the stomach after eating, loss of appetite, constipation, etc. He has occasional attacks of vomiting of a watery fluid containing much mucus, and is troubled more or less with severe pyrosis and regurgitation of a very sour, burning fluid. Pyrosis is not a regular symptom of chronic gastritis, and indeed, is frequently not present at all. Fermentative processes and the production of fatty acids do not, as a rule, take place in this disease, as dilatation and stagnation of the stomach contents is not a frequent complication. When present it speaks against chronic gastritis, since in the latter as a rule, the fluid is passed on by the stomach into the intestines in the normal time. In many cases the motor activity of the stomach is even increased; only exceptionally is it diminished, and never to such a high degree as in dilation due to malignant disease. Hcl. being also deficient in amount the reaction of the stomach contents in such cases is usually but faintly acid, neutral or alkali, hence pyrosis is not a common symptom.

The patient has never vomitted undigested food, nor has blood ever been found in the vomit or stool. His difficulty is worse after a meat diet than after

a vegetable. This is somewhat characteristic, as in cases of carcinoma of the stomach, salivary digestion is frequently good, and starches are well born. He has a tumor in the region of his stomach to the right of the median line, above the navel, oval in shape, which decends with inspiration and can be held down on expiration. The swelling is sensitive to pressure. Although he has eaten nothing since yesterday, and it is now 11 A.M., palpation elicits a good succussion sound below the naval and previous inflation of the stomach with Tartaric acid, and Bicarbonate of Soda had shown the upper boundary to be in its normal position. The lower boundary is found two inches below the navel. By means of a stomach tube at least a pint of food containing undigested food, and a pea that the man had eaten six days before, were withdrawn, showing stagnation of the contents of the stomach. This is somewhat peculiar, when we consider that the patient has never vomited food. The fluid withdrawn was strongly acid, but contained no free Hcl. Large amounts of lactic acid were, however, present. The diagnosis of malignant disease was not difficult, for the following conditions: First, the age of the patient; second, the loss of flesh and strength with cachexia; third, epigastric pain not relieved by vomiting; fourth, the presence of a tumor belonging to the stomach and associated with dyspeptic symptoms; fifth, frequent vomiting, with dilatation of the stomach; sixth, absence of Hcl.; seventh, presence of lactic acid in large amounts.

Case II: Woman 56 years old; ill for three years; 20 years ago the patient vomited blood off and on for a period of about seven years. The blood was dark in color, not coagulated, and probably came from an ulcer, though it might have been due to congestion from some other cause. The patient has a good deal of abdominal pain, especially in the intestines, and frequently vomits one or two hours after meals. This consists usually of mucus, or one-half cupful of a slimy fluid, and occasionally contains undigested food. She has lost much flesh and strength; her bowels are always constipated; stools hard, and she has used much salts and many enemas; her appetite is poor and she eats but little. The contents of the stomach were withdrawn with a tube, and consisted of mucus and undigested food. Litmus paper shows a slight amount of acidity, but Congo paper was not discolored by it, showing the absence of free Hcl. No lactic acid was found.

Physical examination showed a tumor in the epigastric region to the right of the median line, painful on pressure, which descended when the patient took a deep inspiration, and could be held down during expiration. She does not know how long it has been present. A cancerous tumor of the pylorus, if not adherent to the liver, will move down on inspiration and can be held down by the hand during expiration. Tumors of the liver ascend and descend with the respiratory movement, and cannot be held down in expiration as can this tumor.

The diagnosis laid between cancer and chronic gastric catarrh with a tumor near the pylorus consisting of inflammatory exudate and cicatrical thickening caused by the ulcer twenty years ago.

In favor of a diagnosis of malignant disease were the following conditions: First, the presence of a tumor; second, the age of the patient, gastric cancer be-

ing most common after the age of 40 years; third,

In favor of the diagnosis of chronic gastritis were the following facts: First, the average duration of cancer of the stomach is about one year, rarely more than two, while this patient has been ill three years. The long duration of the illness favored the benign process. Her face was pale, her skin flabby, and subcutaneous fat greatly diminished, but she did not present the yellowish or straw colored hue of malignant disease, nor was she as emaciated as one would expect a person with cancer of the stomach for three years to be.

Second: The vimitus consisted of mucus or slimy fluid, only occasionally mixed with food, and contained no blood, whereas the vomited matter in cancer, while at first like that of chronic gastritis, soon becomes streaked with blood and dark in color, like coffee grounds in appearance; nor was blood at any time found in the stool.

Third: No secondary growths were to be recognized in the liver, peritoneum or lymphatic glands.

Fourth: Free Hcl. may be present or absent in chronic gastritis, though usually absent. Lactic acid is rarely present, and never in such large amounts as in cases of cancer.

I exceedingly regret that I am unable to present the succeeding history of the case.

Were the time at my disposal not so limited I should be glad to mention a few points pertaining to the blood, which are of value in differentiating cancer of the stomach from other conditions. On this point, however, Osler says, "the chemical findings are of greater value. The constant presence of lactic acid and the absence of Hcl. have in several particular cases suggested the diagnosis of cancer which has been verified later on by the development of a tumor."

In this connection I wish to refer briefly to the following case, reported by Boas in the Deutsche med. Wochenschr. 1892, No. 17: Patient, man of 40 years with dyspeptic symptoms. He has never vomited but once. No blood in vomit or stool. Somewhat pale and emaciated. No tumor anywhere to be found. He has pain after eating, and a localized point of tenderness in the epigastric region. A diagnosis of ulcer of the stomach was made so no tube was passed. Treatment by hot poultices and silver nitrate semed to benefit him, and in three weeks a test breakfast consisting of two slices of bread and ten ounces of water was given. Contrary to all expectations, the stomach contents had no free Hcl. and contained quite undigested bread as one would find in a case of chronic gastritis. The reaction was slightly acid, only Uffelmann's test gave an intense yellow color.

In consideration of the absence of free Hcl. three things were considered: First, in reference to acidity; second, chronic gastritis; third, a malignant growth in an early stage. The large amount of lactic acid, however, spoke against the first two hypotheses. One week later the stomach tube was passed in the morning before the taking of anything whatever, and a tumblerful of food remnants was removed. It did not smell decomposed, contained no free Hcl., no yeast or sarcinae, but gave a pronounced lactic acid reaction. The same condition was found on the following day, so that the presence of a pronounced insufficiency of the stomach was established.

The absence of free Hcl. and sarcinae

spoke against the presence of a dilation caused by benignant pyloric stenosis. This was confirmed by inflating the stomach; its lower boundary did not extend below the umbilical line.

The following conditions were present: First, severe stomach symptoms in a man 40 years of age, without assignable cause, and with a previous good stomach history; second, loss of weight and strength; third, stagnation of contents; fourth, repeated vomiting; fifth, absence of free Hcl.; sixth, exquisite lactic acid reaction. The presence of a tumor only was wanting to make the chain of evidence complete. Two months later in the median line between the tip of the sternum and the navel, was felt a hard tumor, sensitive to pressure, moving on inspiration, but which could not be fixed on expiration, thus appearing to belong to the liver. A few days later he died. Postmortem showed the pyloric extremity of the stomach to be in great part changed into a tumor the size of an apple. The pylorus was passable for a finger, its inner surface was ulcerated, the new growth was sharply defined, and the rest of the stomach free. The liver and spleen were free from metastasses.

In this case a diagnosis of carcinoma was made six months before the tumor was felt, by the high degree of lactic acid in the stomach contents.

The test for lactic acid should be made in the morning before the taking of food, or after a test breakfast. There is no lactic acid in oatmeal, so that oatmeal gruel is to be preferred for the test meal. The stomach should be washed out the evening before. It is often a most difficult thing to get a dilated stomach perfectly clean, but it must be absolutely so before the test meal of one pint of oat meal gruel is given. One hour later the tube should be passed, and the test should be made when the specimen is fresh, for lactic acid may sometimes be found in the fluid removed from the stomach of a case of chronic gastritis if the examination is not made for several hours after its withdrawal. One should never come to a conclusion from one examination only; the test should be repeated several days in succession, and if pronounced reactions for lactic acid are secured, the formation of lactic acid in the stomach is proven, and the presence of cancer is extremely probable. There is occasionally a *trace* of lactic acid present even after a test meal, and Uffelmann's test with chloride of iron may give a slight reaction. This, however, is never so marked as in cancer. Normally a stomach contains no lactic acid at all. The pronounced color present in cases of carcinoma is never seen with a normal stomach unless lactic acid in some form or other has been introduced into it; even in benign stagnation or pyloric stenosis no such amount of lactic acid is produced as is found in cases of carcinoma. The absence of Hcl. in itself proves nothing; it is frequently absent in neurosis, atrophy of the stomach, chronic gastritis, etc. It may even be wanting in ulcer of the stomach, in which cases Hcl. is usually markedly increased. There is hardly any disease of the stomach in which Hcl. will not occasionally be wanting, but this lactic acid excess is characteristic only of cancer.

But the absence of lactic acid does not exclude cancer, as many cases are on record in which no lactic acid has ever been found. This is especially true of cases in which there is no stagnation of the stomach contents. As Osler and McCree say in their recent study of cancer: "Its pres-

ence speaks strongly for the existence, but its absence has no weight in favor of the absence of cancer."

*AUTO-INTOXICATION AS A CAUSE OF GINGIVITIS.

J. C. MAXWELL,
Paw Paw.

It is impossible to give, during the short time allotted to me at this meeting, anything like a complete report on this subject. But I will try briefly to give the histories of a few cases of auto-intoxication complicated by gingivitis with pyorrhoea more or less severe.

I consider the subject under discussion an important one, from the fact of the apparent relationship in a great many cases between self-absorption and various conditions of the mouth so very frequently found as complications in cases of so-called biliousness. It is a subject that comes under our almost daily observation.

It might be well to explain at this point what we mean when using the term auto-intoxication. If I were to offer a definition it would be something like this: Auto-intoxication is a condition of self-absorption of the poisonous waste products of the body to such a degree as to interfere with the normal activity of the centers governing the excretory organs, thus obstructing natural elimination. When I say natural elimination, I mean, of course, normal elimination, normal stool, normal urine, normal excretion from the salivary glands, the skin and lungs.

How often we are consulted by patients complaining of dull headache, loss of strength and ambition, constipation, thick and highly colored urine, coated tongue and bad breath? This is almost a daily occurrence. And what is it? Non-elimination, absorption of waste and therefore poisonous substances, causing irritation of the nerve centers, and thus a condition of auto-infection with elimination through unnatural channels.

This is the cause of the constipation, the cloudy urine, the foul breath and fouler salivary excretion.

This leads me up to the few cases above mentioned that have come under my observation the year just past.

Case I. Mrs. P., age 42, married fourteen years, never bore children, a resident of Paw Paw. First came to me for consultation about seven years ago, complaining of constipation, indigestion, pain in the right side in the liver region, pain in the region of the left ovary, irritable bladder with smarting and burning at urination, severe, irregular headaches—not due to error of refraction as found upon examination—dull, cloudy mentation, with coated tongue and bad breath upon arising each morning. I prescribed for her, using so-called liver stimulants, something to allay the irritation of the neck of the bladder and advised a thorough course of eliminating treatment with vaginal examination if no better. This examination being submitted to at a later date, I found, as I suspected, a pronounced anti-flexion with prolapse and free pustular discharge from the uterine cavity. Upon further physical examination there was determined an enlarged, tender liver, a distended colon throughout its entire course, irregularity in cardiac action, chronic constipation of long standing, with straining at stool and very scanty menstruation.

*Read before the Van Buren Co. Medical Society, January 13, 1903.

Here was a typical picture of absorption from the liver, from the distended bowel, the bladder, ovaries and uterus. Local treatment, electrically and otherwise, very irregularly employed, with eliminating and stimulating medicament, gave some relief until the fall of '98, when, after a period of severe exercise, the patient was taken down with an acute inflammation of the pelvic organs, the ovaries, the uterus, the bladder. Carried through this, the same old treatment was carried on irregularly as before (the patient refusing curettment and divulsion of the anal sphyncter, both of which were indicated), until in the late Fall of 1901, when she was again stricken down, this time more seriously than before. It was on the morning of Dec. 16th of the year just mentioned (the date being familiar to me because of the fact that a baby boy came to our home during the afternoon of the 15th) that Mr. P. came for me, saying his wife was very bad, fearing that she was unconscious when he left, and wished me to get to her as soon as possible. Being already dressed, it was but a few moments when I reached the bedside, and sure enough found her unconscious and in convulsion. Being familiar with the history and recent health of the patient, I considered the condition due to extreme irritation of the nerve centers, caused by absorbed poisons, though the cause might have been circulatory through the sympathetic nerve supply, and at once administered hypodermically heavy dosage of morphine, strongly guarded by atrophine and strychnine, and at the same time dispatching a messenger for Dr. Hoyt, in consultation. Under treatment, the patient soon became quiet, and about the third day consciousness returned. At this time and in fact as soon as the patient could swallow, liberal dosage of mild chloride, followed by Epsom salts, was administered, and this in turn by high and low enemas of water, soap and water, water, glycerine and epsom salts—all with very little result. The patient remained conscious about two weeks, and not being able to get the desired result by using the bedpan, and refusing to use it longer, she insisted upon getting up to stool, straining hard to accomplish movement of the bowel. It was while undergoing this ordeal that she was taken with the second series of convulsions, having eight before quiet could be restored.

During the conscious interval, patient complained of excruciating pain in the head, describing it as a seeming band of steel being drawn tighter and tighter until it became absolutely unbearable till morphine would be resorted to, when the patient would again become quiet and remain so for several hours. This patient, after the second series of convulsions, did not again regain consciousness, but lingered in this unconscious condition until about the middle of February, 1902, when she died. A post mortem was refused.

While this case is not a typical one, as indicated by the title of this paper, still I consider it a true picture of auto-intoxication in the extreme.

Case II. Mr. W., 52 years of age, born in France, came to this country when 34 years of age, glass blower by trade since 14 years of age. About three years ago, at the beginning of the land craze in the neighborhood of Paw Paw, this man came from Indiana and bought a farm two miles east of the county seat, where he has lived a quiet, out-of-door life ever since up to November of last year, when he moved to Kansas with his boys, who are hereditary glass blowers.

This patient first came to me for consultation during the latter part of July, 1902, complaining of constant dull headache, loss of flesh and of strength, with extreme exhaustion upon the least exertion, and marked palpitation. I asked to see the tongue, and thereupon made a careful examination of the mouth in general, and found a positively vile condition. The tongue fearfully coated, a grayish, dirty coat, the sides, teeth and gums covered with the same slimy matter, the gums bleeding at the least touch, the teeth loose and from around which—everyone of them (twenty-seven in all) with the slightest pressure could be squeezed out pus in great quantities. Upon further examination I found that the teeth began to pain him about ten years ago, at which time he commenced to have dizzy spells, with constipation and attacks of diarrhoea. This condition became more and more aggravated till his visit to my office, when he had apparently reached his limit and thought it about time to do something for himself.

I prescribed mild chloride in small doses, until the desired result was obtained, regardless of amount, sodium phosphate in hot solution, together with nerve and heart stimulant, and sent him home to call again in three to five days if he was able. I was not surprised when a couple of days later his son came in and asked me to go out to see his father, as he was no better.

By first impression on entering the house was the similarity in odor to that of an old and recently abandoned privy vault, and upon examination of the mouth that too resembled the same. When examining the mouth I was struck with the appearance of the teeth and gums, and upon questioning the patient, found that he was using what he called flannel salve, a mixture of asbestos and beeswax, to protect the teeth from the atmosphere, as contact with the air caused severe constant pain. The patient lost flesh rapidly, reducing from 185 down to 130 pounds during his two months' sickness, and in spite of eliminating and stimulating treatment, no particular improvement could be gained until extraction of the teeth was resorted to. Of course it was a chance, and the only chance the patient had, in my estimation, to recover, as there was constant swallowing and absorption of great quantities of pus, and evidently more poison absorbed than eliminated. Extraction was done by Dr. Lanphear, of Paw Paw, the injection method being used, after which the patient made a good recovery, and in November, when starting for Kansas, weighed 165 pounds.

It would take too much of your time to report this case in full, though it was a very interesting one, but I wish to say that during the two months of sickness this patient's temperature ranged very low, remaining near the one hundred, F. mark most of the time. Another feature was the sallow, malignant look, the presence, both before and during treatment, of ulcers in the mouth and throat—one ulcer in the throat measuring about two inches by one inch. This condition resisted all treatment until extraction of the teeth was accomplished.

This case may safely be called a double one—the gingivitis with pyorrhoea might have been the cause of the auto-infection; and surely was the cause of keeping up the trouble, and the auto-infection might have been and probably was, together with neglect of the teeth, the cause of the condition present.

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SAGINAW	T. M. WILLIAMSON	Saginaw	M. D. RYAN	Saginaw
SANILAC	H. W. SMITH	Carsonville	GEO. S. TWEEDIE	Sanilac Centre
SHIAWASSEE	D. H. LAMB	Owosso	CHARLES SHICKLE	Owosso
ST. CLAIR	C. C. CLANCY	Pt. Huron	A. HENRI CATE	Port Huron
ST. JOSEPH	MARDEN SABIN	Centreville	JOHN R. WILLIAMS	White Pigeon
TUSCOLA	A. L. SEELEY	Mayville	W. C. GARVIN	Millington
VAN BUREN	GEO. D. CARNES	So. Haven	N. A. WILLIAMS	Bangor
WASHTENAW	REUBEN PETERSON	Ann Arbor	J. W. KEATING	Ann Arbor
WAYNE	F. B. TIBBALS	Detroit	HUGH MULHERON	Detroit
WEXFORD	B. H. MCMULLEN	Cadillac	G. D. MILLER	Cadillac

Editorial

MEMBERSHIP AND DUES.

In a recent address to the old members of the American Medical Association (*Journal of the Michigan State Medical Society,* February, 1903), the secretary clearly defined the stand taken by the Association, namely, that after March 1st of this year only he who is a member of his State Society is entitled to membership in the American Medical Association, and it is now clearly understood that membership in the State Society can be gained only through membership in the County Society.

At the annual meeting of the Council, held in Detroit, January 9, 1903, at which were present the councilor of every district, the president, first vice-president, secretary and treasurer of the Society, the following resolutions were adopted:

1st.—Every member of a chartered County Society is a member of the State Society, and the dues to both must accompany his application for membership in his County Society.

2d—Each old member of the State Society must affiliate himself with his County Society, in those counties in which a chartered organization exists, as soon as expedient, not later than **January 1, 1904.**

3d—In those counties in which no chartered organization exists, the old members will be carried on the rolls of the State Society by the payment of dues direct to the treasury of the State Society until such time as these counties are chartered.

The fiscal year of the State Society was fixed to run from January 1st to January 1st, and it was recommended that the annual meeting of the County Societies be held during the last quarter of each year, to the end that all reports and dues may be received by the secretary of the State Society not later than January 1st of each year.

The dues to the State Society from County Societies already chartered are next payable January 1, 1904, and are to be collected from each member by the secretary of the respective County Societies some time during the year, on or before January 1, 1904, and transmitted by him to the secretary of the State Society by that date.

In fixing these dates and the time limit for the payment of dues to the State Society the Council is placing the collection of the finances of the Society on business principles. One of the main objects of the reorganization is to enable the physician to pay his dues to the county and the state at the same time and at a minimum rate. It is earnestly hoped that those physicians who have not yet joined their County Societies and who have made no attempt to form a society in their county, realize by this time that this systematic organization of the medical profession is simply a means to place at the command of the individual doctor every personal advantage, to give him greater returns for the money expended, to enable him to meet more frequently and under the most favorable circumstances his brother practitioners. There is absolutely no attempt to force any physician into a society against his will, but membership in the larger society is made simply obligatory upon recognition and work in his own locality. There is nothing radical in this; it, the stepping from the lower to the higher, is the principle recognized in all governing bodies. It has always been the principle of admission to member-

ship in the American Medical Association, but has until recently not been enforced, to the detriment of the American Medical Association, the State and the local societies.

Today, under business principles, under better systems of organization and regulation, for the good of the whole, the American Medical Association, the State Society and the County Society are one indissoluble body.

A CORPS OF LECTURERS FOR COUNTY SOCIETIES.

In order to keep the work of the County Societies active and of interest the Council has placed at their disposal a Corps of Lecturers. These, one from each District, selected by the President for their especial fitness along certain lines, are to be ready at the request of the Secretary of any Branch Society to present a paper before that body. The names of the lecturers must not include any one in connection with any institution of learning, as the latter is usually ready to respond. This is done also that the greatest number of our members may become interested in the maintenance of the Society and its Branches.

For illustration, the President has appointed as lecturer of the 1st District Dr. Thaddeus Walker (Detroit) on Laboratory Work and Diagnosis. Dr. Walker, who is the Superintendent of the Detroit Clinical Laboratory, will be pleased to present upon request before any Branch Society the latest methods used in Laboratory Work and the value of such work for diagnostic purposes.

OSTEOPATHY AND THE LAW.

The method of treatment which sails under the flag of osteopathy is nothing new so far as it is good. Massage is a well developed and recognized branch of general medicine. It is, however, only a branch of medicine. Just as every intelligent and well-trained physician makes use of hydrotherapy, suggestion, electrotherapy in suitable cases, he will apply massage. If anybody undertakes to heal everything by one of these methods, as, for istance, the faith healer by suggestion, or the osteopath by massage, a direct danger to the public, which does not know better, is the result. It is proven by many sad instances what the senseless application of a method may lead to. Only a thoroughly educated physician is able to tell whether massage should be applied in certain cases or not. If he will entrust the mechanical part of the treatment to a reliable and competent party he may do so. It would seem that a sharp distinction should be made between a physician, titled "doctor," and a masseur. There does not exist the least intention to persecute any class of people or to attack anybody without just cause. It must, however, be clear that the public should know that an "osteopath" is a "masseur" and that the public should be protected in some way or other. The osteopath who is unbiased will, doubtless, admit that there exists a great opportunity for many unknowingly to take advantage of a certainly unjustly privileged position. There is no other way out of the present dilemma than to make the public understand that an osteopath is not what is ordinarily understood by the term "doctor," and that the osteopath is not of the medi-

cal fraternity. The law should define the position of so-called osteopathy clearly and without the least possibility of an error. So much is due to the commonwealth.

EMIL AMBERG, Detroit,

Member, Committee on National Legislation, American Medical Association.

County Society News.

There are now in the state forty-eight chartered County Societies. These forty-eight societies represent sixty-five counties, several counties having, in a number of instances, joined together to form one society.

BAY COUNTY.

The annual meeting of Bay County Medical Society was held on Monday evening, Jan. 19, 1903, in Bay City, at which the following officers were elected for the ensuing year:

President—Dr. A. E. Hoyt, Bay City.
Vice-President—Dr. G. W. Moore, Munger.
Secretary—Dr. Morton Gallagher, Bay City.
Treasurer—Dr. C. H. Baker, Bay City.
Delegate to State Medical Society—Dr. J. W. Hauxhurst, of West Bay City.

Also, as suggested by a communication from the secretary of Wayne Medical Society, we elected a "Legislative Committee"—Dr. C. T. Newkirk, Bay City; Dr. Wm. Cunningham, Bay City; Dr. Morton Gallagher, Bay City.

M. GALLAGHER, Sec'y.

CALHOUN COUNTY.

*CONSIDERATIONS OF SOME CARDIAC PROBLEMS.

GEO. C. HAFFORD, ALBION.

I hope no one will expect from the title of this paper that I will attempt to cover all the pathological conditions which may be found to exist in the heart, though I leave discussion open on all points. It is my intention to take up some, both of the more common and of the more unfrequently met, to present for your consideration. I have been induced to do this today, from the fact that during the past year I have had occasion to study and treat some cardiac lesions which have impressed on my mind certain things in regard to diagnosis and treatment. I believe, too often heart disease, so-called, is treated in a routine way, with the simple diagnosis of heart disease, or perhaps as organic heart trouble, or as a valvular trouble, with no regard to the work the heart has to perform in the specific case, or no thought to the heart muscle or the arterial system, or the many external influences at work. It is a good thing sometimes to review a little anatomy and physiology, and at the risk of boring you or repeating that with which you are familiar, I must ask you to bear with me in a brief review of some of the underlying essentials of diagnosis and treatment of cardiac lesions.

The heart is a hollow muscular structure of great strength, divided into four chambers. It is perhaps unnecessary to review its position, but we must remeber that it is a somewhat movable organ, and its position is affected by the position of the body, by respiration and by pathological conditions. It is normally held in position almost entirely by being suspended from the roots of the great vessels emerging from it, which fix only the base, leaving the rest of the organ movable.

It rests on the diaphragm through the pericardium, and may be easily displaced laterally, but rarely either anteriorly or posteriorly. Without stopping to consider changes of position, we remember that they are divided into congenital and acquired, the latter occurring as a result of disease may be due to causes which exert pressure or which exert traction; these many different conditions will readily occur to you. The normal position of the heart, the relation of the pericardium, especially anteriorly, to the chest wall is of the greatest importance from a surgical standpoint, on account of various surgical procedures which have to be performed through this region of pericardial attachment. The heart is in reality a set of pumps governed by the nervous system ,and containing a most complex set of valves. The auricles acting merely as reservoirs to collect the blood from the capillary system and empty it into the ventricles, which do the principal work in forcing it through the body. When we consider the size in relation to the work performed, we can begin to realize something of the enormous responsibility, so to

*President's Address, Calhoun Co. Med. Soc., at Marshall, Mich., Dec. 9, 1902.

speak, resting upon the perfect action of all its parts. When we consider the vast amount of work that this organ, weighing only 9 or 10 ozs. does, over 400,000 foot pounds of work in 24 hours, or the equal of a man weighing 165 lbs. climbing a mountain 2644 ft. high, sending the blood flowing through the arteries at the rate of 16 in. a second, and the pulse moving at the rate of 29 ft. per second, sending a portion of blood through the systemic circulation in 23 seconds. When we think of all this work, the mysterious complexity of it all, we wonder that we do not more often have disastrous effects following valvular trouble, but we shall see later that nature often steps in and with as mysterious methods arranges matters by means of a process which we call compensation. Perhaps no other organ is so intimately connected with and influenced by the other structures of the body. So much so is this true that when you begin to study effect and cause of cardiac lesions you find that you cannot make any headway without taking many other conditions into consideration.

Lesions of the valves or of the openings of the heart have always two results. First, the direct effect on the heart muscle; second, the indirect effect on the other organs of the body. Likewise disease of other organs may have a direct mechanical effect on the heart, not only by direct pressure, as an effusion, a dilated stomach or a tumor, but by the influence exerted on the heart through the change of blood current or blood pressure. The study of the heart is made more complicated by the different terms connected with it, which are used to denote the same thing, as regurgitation or failure of compensation, insufficient for obstruction, biscuspid and tricuspid for auriculo-ventricle, etc.

I have taken the liberty to reproduce some drawings from standard works to illustrate. Here is a diagram showing some of the indirect and direct effects on the heart. It is unnecessary to take them up seriatim, but for example, a lesion at the aortic orifice, we have a blowing sound most distinct either during systole or post systololic, denoting respectively stenosis aoritic obstruction, or regurgitation, aortic incompetency.

If the former one of the effects is increased work of the left ventricle and we have hypertrophy, now as an example of direct lesions effecting the heart, take a congestion of the kidneys; here we have a part of the circulation cut off, the blood pumped to renal artery comes against an obstacle it is damned back, the heart keeps on pumping blood against a higher pressure, result, harder work and again hypertrophy.

In reviewing the means of diagnosis, in addition to the well known methods of inspection, palpation, percussion and auscultation, modern invention have given us new methods not the least of which is the X-ray, which not alone is of diagnostic value in itself but is of the greatest use in confirmation of other tests. Thus may be seen sometimes with great distinctness the shadow of aneurismal or other tumors, the size and location of the muscle, pericardial effusion, the movement and changes of the size in diastole and systole.

Morritz has used a special instrument which he calls an ortho-diagraph to draw an exact reproduction of the heart boundary, as shown by the fluoroscope. By the X-ray we have learned that in certain cases of weak flabby heart with dilatation the ventricles do not empty themselves compeltely during systole, a fact which we were not certain of before. The X-ray has also confirmed some of what we formerly supposed were causes of murmur, for instance the pre systolicism of mitral stenosis has been shown by observing the ventricle actually distending during murmur.

We have also learned that valvular lesions are not necessary to dilatation. It may occur with the valvular mechanism perfectly intact. Dilatation is not as rare as formerly supposed; most hypertrophy is probably attended by some dilatation as in most cases dilatation is preceded by some hypertrophy; again dilatation may be the cause of valvular deficiency not by changes in the valves themselves but by a change in the relations. The muscular ring has become too large for a proper fit of the valve, then we have cases of muscular insufficiency; here the valves are normal, fit perfectly, muscle and ring are normal, but through lack of proper nervous stimuli the valve action is irregular or imperfect, heart disease does not mean valvular disease.

The condition of the heart after exhausting exercise in athletics has been studied by different investigators with different conclusions, but the probability is that there is a transient enlargement. Thus Smith found the linear measurements nearly double, but Morritz found no difference. Under exertion carried to the point of producing dyspnea, Schott found a temporary dilatation which has been confirmed by the X-ray. Potain's method of carefully locating the heart boundaries by the usual methods, then drawing on the skin, the location found and transferring to a transparent paper is of great value, the paper in connection with a history and with such slight notes as may suggest themselves preserved for

comparison at future times. The originator was able to demonstrate at autopsies the correctness of his locations by passing long pins through the body on the boundaries determined, and found that very seldom were the pins ½ inch from the true relations as he expected to find them. (Illustrations shown).

But all these mostly serve but to confirm the usual auscultation and percussion methods, and to show that the latter has been and is now to be relied upon. The apex beat may prove very fallacious. In locating it the area over which it may be felt will vary with the force of its movements; when very forcible its impulse can be felt far away from the heart. The change of true heart sounds as well as of adventitious sounds in different postures of the body and after rest and exercise are well worth studying. Gordon gives the following as the changes produced in murmurs by changes of position: "Hemic murmurs are increased by recumbency except the venous hum which it tends to obliterate. The mitral regurgitant, tricuspid regugitant and aortic direct are increased and the murmur of mitral stenosis decreased, while the aortic regurgitant is not much affected." He explains this change as due to two factors, gravity and the lessening of the depth of the chest, which occurs on assuming the recumbent position. This he has found to cause a change of ½ or 1-16 in. in the depth of chest cavity.

In dilatation fatty degeneration is usually present, though it may be due to other forms of degeneration, and hypertrophy usually exists or is associated at some time in the same heart. Hypertrophy always means conservatism, nature's effort to overcome the extra work, to compensate matters, but dilatation is a sign of nature's weakness and impending danger. Hypertrophy is sometimes divided for convenience of study into that of intrinsic and extrinsic causes, as in renal or pulmonary diseases for example of extrinsic, and stenosis of some opening for intrinsic. It is not necessary to go over the numerous causes, just remember anything which compels the heart to overwork, and when you fail to find any other reason, always think of Arterio-Sclerosis, the most common of all causes. In acute endo-carditis which is usually secondary, there are two types, vegetative and ulcerative with good prognosis in the former, but poor in the latter. "It may be laid down as a rule with but few exceptions that when the heart is performing its work in a proper manner, it needs no medicine, even though murmurs may be plainly audible or hypertrophy plainly exists. But for the benefit of the heart other organs or conditions must be looked after as quality of blood, rest, exercise, or diet."

Morrisey says, "there are more snap diagnoses made in the realms of cardiac disease than any other part of the body. Do not mistake valvular deficiency, for heart disease; there is a difference between cardiac disease and cardiac failure. Do not be satisfied with examining the heart alone when you find cardiac trouble; eyes, skin, urine, capillary system, occupation of patient, all have their bearing on the cause. The pulse does not always correspond with the heart beat. Billings reports a case where the pulse registered 30 to 40 beats, while the heart by the stethoscope was 40 to 56."

Don't always be satisfied with a diagnosis of one condition of the heart for more may exist at the same time. Jurgensen says, "that the diagnosis of the future will often be 'pancarditis' for most cases of endocarditis are complicated with myo and peri-carditis." Do not be satisfied with an examination from the anterior surface, percussion and auscultation at the back will often clear up a murmur. In examination of the heart posteriorly the region of percussion for the Left Auricle is comprised in a trapezoidal space bounded by the vertebral column, the spinal border of the left scapula and two horizontal lines drawn one through the spine of the scapula, the other through the lower angle of that bone; the limited area of dullness corresponds to the 6th and 7th dorsal vertebra, enlargement occurs in mitral stenosis, and especially in mitral stenosis combined with insufficiency. Barie says, "in mitral stenosis it may be the only available sign." Dullness of the Right Auricle is found by a similar procedure. It is said that in enlargement of the Right Auricle it is in a backward direction, so that percussion anteriorly does not show it. It would be very interesting to take up the peculiar class of conditions of the heart in that complex disease, exopthamic goiter, also a review of the bacteriological pathology of the different heart lesions, how the different bacteria, the tubercule bacteria, the germs of pneumonia, gonorrhoea, diphtheria, etc., have a part in the origin of the different inflamatory diseases, but time will not permit. The time cycle of the beat, and the different conditions occuring during the cycle, are of the most importance in diagnosis, as well as the location and transmission of the different sounds, the areas of thrill or pulsation, etc., the charts exhibited shows these much better than any description.

The sensations of pain referred to the regions of the heart as symptoms to note in diagnosis are,

says Flinterman, too little studied. They are passed lightly by with the diagnosis of pleurisy, neuralgia, etc., and the true pathological cause of the pain often overlooked.

Nothnagel has collected 483 cases of valvular disease, which show the greatest differences in the frequency of painful sensations observed in the different valvular lesions. To quote farther from Flinterman he "found disturbance of sensation in 60% of all cases of aortic insufficiency, 68% of all cases of aortic insufficiency with stenosis, in 40% of all cases of aortic stenosis," the percentage getting lower with the other abnormal conditions to 7.2-3% in mitral insufficiency, and no disturbances of sensation in stenosis of pulmonary openings. This symptom of pain is one of which little is heard either in discussion or in text-books. We recognize and discuss fully the pain of Anginal attacks, the cyanotic conditions, etc., but the sharp, transient attacks of pain or burning sometimes accompanied with palpitation, those of which the patient complains, but of which we can find no sign, we are apt to pass over as of no diagnostic importance, or to not attach their true import.

I will try and be very brief in dealing with the treatment of heart lesions, just a short review of the underlying principles. When we are dealing with the heart muscle directly there are always one of two essentials, stimulation or sedation. We have a variety of remedies which act directly on the heart, either through the nervous system or vascular system, or to some extent on the heart muscle. Among these we find of the former the stimulants, Ammonia, Alcohol, Strychnia, Strophanthus, Supra-renal ext. Digitalis, Caffene, and among the latter Antimony, Veratrum, Aconite, Prussic Acid, Opium, etc. Among those that effect the heart through the action on other organs are particularly those that change the blood pressure, notably Nitrite of Amyl and Nitro-Glycerin, Pot. Iodide, etc. Then the whole list of tonics, reconstructions, anti-spasmodic, etc., have their use when indicated, and may have an important effect on its work or nutrition.

For years Digitalis has been the principal remedy in diseases of the heart and still continues to be. At the same time it seems to me that it is used the most indiscriminately of any drug I know. It is *the* drug of this class of which we know the most. It has been subject to the most experiments and study, and it seems to me that so much unwarranted use of it, so much use where it is completely contra-indicated is most reprehensible. I do not know whether my experience coincides with most of you, but I certainly recognize poor practice in prescribing digitalis more than any other drug. The action of digitalis on the circulation is usually divided into four stages.

1st. Rise of arterial pressure accompanied as a rule by the slowing of the heart.

2nd. Continued rise of blood pressure with increase of pulse.

3rd. Continued high pressure with great irregularity of heart.

4th. Rapid sinking of blood pressure, failure of heart, death in systole.

Now with these known actions of drug before us, what are the indications.

We have, say, a case of valvular disease with great hypertrophy; compensation not yet established, heart tired, not able to keep up its action with the weak valve behind it, no evidence that the heart will be able for some time to, by extra strength, from more hypertropry, be in condition to pump to the tissues the blood demanded. Here is the condition where it seems to me the mistake is made.

Digitalis is given, the heart is made stronger for the time, but blood pressure rises; result, more work for the heart, it tires out, you increase the dose and finally it stops in systole, and you say it would not respond. You know the illustration, "you whip a tired horse." What you should do is to lighten his load. Give more attention to the heart muscle and less to the murmur. Don't use any stimulants unless absolutely needed to tide over a short period, and then only after you have tried the effect of making the load lighter. Use the vaso dilators, Nitrites, Pot. Iodide, Calomel, Diuretics, etc.

Suppose a case of pneumonia, consolidation of a large pulmonary area; the heart is working hard against a high blood pressure is beginning to fail, you have perhaps used aconite on the start, or veratrum, to dilate the capillaries, and so relieve blood pressure, but it is not sufficient and cyanosis and irregular action warn you of impending danger, the heart is weakened still more by the toxins of the disease, here digitalis is of great value, either alone or combined with some other drug, as aconite or nitro-glycerin. It will aid in carrying through a period till the lung begins to clear, the fever to drop, the toxins to be eliminated. You may have to aid it at times by the more rapid acting drugs, of which among all the old ones or new ones either, I would place supra-renal extract at the head. Injection of normal saline solution with or without venesection will clear the blood of toxins and much aid a poisoned heart.

In cases of a weak, rapid, dilated heart, with low arterial tension, it is indicated, why, to hold down and steady the beat to make more time between the beats that the muscle may get more rest and more nutrition. I saw such a case lately, a case of fatty and dilated heart, murmur it seemed at every orifice, man short of breath and having cyanotic attacks, insomnia, etc. This man had actually been, by one of the eastern Professors, put to work in a gymnasium, on a track, running and using dumb bells and clubs. He was kept quiet, put on small doses of digitalis and strychnine, dieted, light massage, and later when he was able was put to doing some light physical culture movements, and he is gaining every day.

In Strychnine I think we have one of the best of heart tonics, especially in cases of tobacco heart, athletic heart, or cases accompanied by nervousness. The error most often made in my opinion is using too small doses. I have used it high as 1/10 grain every four hours for two or three days at a time. In other cases a small dose, but long continued is indicated. It is also a valuable adjunct to digitalis; but I do not care to take up the very important questions of combinations of these different remedies. Strophanthus is often a very valuable substitute for digitalis, but has not the same tonic effect on the arteries. Spartine is somewhat similar, but weaker and unreliable. Strophanthus is inferior to digitalis as a diuretic but may be preferred in some Arterio-Sclerotic cases. Dysponea may often be relieved by drugs of most opposite natures, as Morphine, by giving rest, or diffusible stimulants by increasing action and amount of blood in tissues.

Perfect rest of the patient by keeping him absolutely on his back, not even allowing him to feed himself is in some cases demanded. In cases of weak, rapid action, with or without fever, great benefit may be obtained by ice bags to the precardia. Of all the external applications I am familiar with, this is the remedy par excellence, leeches, cups, counter irritations, blisters or otherwise. Just what its mode of action is I know not, but I do know that it will quiet pain, dyspneo, palpitation, and reduce fever. The Nauheim baths, both natural and artificial, and the special system of exercise of Schott, as an adjunct to general treatment, are highly recommended. I have had no experience with the former. The exercise treatment or resistance movements in properly selected cases is of the greatest value. The dietary of heart disease is a subject of the greatest importance, when we reflect on the close relation of the digestive apparatus with the heart, both directly, as from a distended stomach or colon, and through the reflex nervous system, and of the many cases of palpitation and nervous heart we discover in dyspeptic subjects, we must realize that here is a point well worth paying attention to. If disturbances in the stomach will cause so much trouble in a normal heart, what may we expect in a weak, diseased heart; and this is often a very perplexing and complex study, how to get an overtaxed heart well fed, and the problem is made more difficult when as in many cases we have some other disease as the common one of nephritis, where we have a double reason for careful selection of diet.

One or two precautions about diet are these, small amount of food, feed often, food mostly dry, non-irritating and nutritious. The treatment of chronic valvular troubles with compensation is too long to be taken up, but one very troublesome condition I wish to speak of—Anasarca—this condition I think should be attended from its first symptom, for the exdema doses harm not only locally but to the heart direct. The tissues being waterlogged, so to speak, offer much more resistance to capillary circulation, consequently more work for the left heart, cardiac asthma and bronchial congestion, non-elimination of effete products all tend to produce a vicious circle. When you have exhausted all the usual diuretics and the fluid with a strict asepsis, the point of a fine bistoury or a triangular needle, the limb dressed in absorbant cotton and dressings changed frequently. It is astonishing the large amount of fluid that will be drained away. When strict asepsis is maintained there will be but little trouble with sores forming, and such as do will respond readily to simple treatment. The combination of neurasthnia with heart disease is very common, and is peculiarly hard to manage, but we will leave that part for any one who wishes to discuss it later.

Now just a little in regard to Cardiac Surgery, this with most of us must necessarily be in the nature of review, for we do not have the experience in such work and are but just beginning to learn that we might have been able in many former cases to have by surgical intervention done something more to relieve or benefit the case. Not only might we have been able to relieve a struggling heart by aspiration or drainage of the pericardium in case of serous effusion, or of purulent infection, but we perhaps might, by timely action, have boldly sutured a wound and saved a patient. In a recent paper before the American Medical Association, Rickets says, "nothing indicates more clearly the lack of confidence in surgical intervention in lesions of the heart than

that they have been treated as Anomalies." The best history of the surgery of the heart is to be found in a work which treats of Anomalies and Abnormalities. They of themselves show that the heart is more susceptible to injury, disease and surgical operations than generally supposed. Simple puncture with a needle was at one time thought to result in instant death, indeed such thought generally prevails at this time. The operative work in the pericardium aside from emergency work may be divided into aspiration, incision and incision after preliminary resection of a costal cartilage, as the available methods. Some surgeons condemn aspiration in toto, and teach that the comparatively slight danger from open incision is more than compensated for by the absence of danger of not perfectly draining—draining from some other part than the pericardium as from pleural effusion, wounding the pleura or mammillary intercostal or coronary arteries, or the heart muscle itself, or infection by the escape of fluid through the puncture into the pleural cavity and mediastinal space, simple incision may be made 2½ inches in length at the level of the fifth costal cartilage, the pericardium being opened a little above the diapraghm. A second line or incision may be bade in the fourth space if necessary, and part of the fourth and possibly part of the third cartilage resected. Through this opening we can get drainage, practice lavage, separate adhesions, or even suture wounds of the heart muscle itself. The edge of the exposed pericardial membrane may be secured to the edges of the wound, thus facilitating subsequent drainage and washing, or a drainage tube may be left in case of purlent effusion. Ricketts says, "the heart is very susceptible to alkaline solutions, which accelerate it, but there is no way of knowing whether the heart will absorb any degree of fluid which has been left in the pericardium, neither has observation been made upon the ability of the pericardium itself to do so. It has, however, been determined that the heart will not withstand a high degree of pressure from fluid or otherwise within the pericardial space. It will stand greater pressure if the pressure is gradually increased, as is the case in pericardial effusion resulting from pericarditis. It will, in a normal state, absorb more or less of its exudate and it will probably have a greater capacity to absorb in a pathologic state." Among the many interesting experiments recorded in the article quoted is one of ligature of the coronary arteries without producing death, and one of resuscitation by pinching the heart apex to stimulate the beat. In the Medical Record, of Nov. 29, 1902, Hill reports a case of successfully suturing a wound ⅜ of an inch of the left ventricle, and gives a table of 37 other cases reported, and concludes from his own experiences, and a review of the cases tabulated, that any operation which reduces the mortality of a given injury from 90 to about 63 per cent. is entitled to a permanent place in surgery, and that every wound of the heart should be operated upon immediately. In any case where there is a suspicion of a wound of the heart exploratory, operation should be performed at once. Unless the patient is unconscious and the corneal reflex abolished, an anesthetic should be given, preferably chloroform. Struggling is liable to produce a detachment of the clot and renew the hemorrhage. Never probe the wound, as serious injury may be inflicted on the myocardium. Rotter's operation renders access to the heart extremely easy, and should be generally adopted. Steady the heart before attempting to suture it, either by carrying the hand under the organ and lifting it up, or, if the hole is large enough, introduce the little finger as did Parozzani, which will serve the double purpose of stopping the bleeding and facilitating the passage of the stitches. Catgut sutures should be used, as wounds of the heart heal in a remarkably short time, and they should be interrupted, introduced and tied during diastole, and not involve the endocardidum. As few as possible should be passed, preventing leakage, as they cause a degeneration of the muscular fiber, with its tendency to dilatation and rupture. In cleansing the pericardium it should be sponged out, and no fluid poured into the sac. Perfect cleanliness should be secured except in cases where instant intervention is required. The wound in the pericardium should be closed, and if symptoms of compression appear, reopened and drained.

DISCUSSION.

O. S. PHELPS, BATTLE CREEK.

There is one point in Dr. Hafford's paper, bearing upon the effect of capillary obstruction, that is of particular interest, and perhaps has a more important bearing upon some cardiac conditions than most of us realize. In many cases of valvular incompetence the valves themselves may be entirely normal, and the regurgitation is caused not by strictly valvular incompetence, but by a stretching of the valve openings, due to two principal causes,—capillary obstruction to the circulation, and mal-nutrition of the heart muscle itself.

In the study of the blood a large number of these cases of valvular incompetence, marked pathological changes have been observed, among which is a change in the condition of the fibrin, produced by the absorption of some of the acids of decomposition, particularly acetic acid, which is well known to have a decided effect upon the blood fibrin. The manifestation through the microscope is that of minute filaments, in such quantities in some specimens that they give the appearance of a bunch of straws crossing each other in infinite confusion. It will be easily seen that this alone would produce considerable obstruction to the passage of the blood stream through the smaller capillaries. Added to this is the increased size of many of the white blood corpuscles, some of them having become giant cells, and, having entirely lost their power of amoebic motion, cannot pass the small capillary vessels at all. When we comprehend the vastness of the capillary circulation and the effect that these pathological changes in the blood would produce, we can readily realize how much extra effort the heart muscle must put forth to accomplish its work; and we can see that if, added to this there be a lack of tone in the heart muscle itself, it is not a farfetched conclusion that there should be a gradual giving away and stretching of the valve openings that would give us the phenomena of valvular incompetence.

Referring to the acid feature, we can easily understand that the fermentation of the starches and sugars would give an abundance of acetic acid, and this, with the depressing effect of the carbonic acid gas (which is also one of the important products of yeast fermentation, benumbing the entire mucus surface with which it comes in contact) gives us all the elements necessary to produce the above condition.

ANGUS MCLEAN, DETROIT.

There is but little new in the development of heart surgery. The tissue of the heart, when injured, heals as rapidly as any other tissue. Operations with trochar present a danger because of the liability of the septic fluid after being drawn into the trochar from the endocardium dropping into the mediastinum as the trochar is being withdrawn, and setting up septil inflammation.

A. W. CRANE, KALAMAZOO.

I consider blood pressure in regard to the work of the heart as due to capillary congestion in the lungs. It is difficult for any physician to be able to tell by palpation of the pulse the blood pressure. Gartener's Tonometer, an instrument that you have all heard of for determining the blood pressure, is a thoroughly practical instrument, easy to apply, and is reasonably accurate. It is, however, open to some objection. A patient comes into your office. He has been unable to lie down, he spends the nights in a rocking chair, he works hard as a farmer. Give him digitalis, tell him to lie down if he can. If digitalis does not help him, take the blood pressure with the tonometer, it might be 93-100. Give him nitro-glycerine, not 1/100 of a grain, give him, perhaps, 1/10 of a grain, give it to its physiological action. If your man can lie down in your office and breathe easily the capillaries will be entirely contracted. If you can send such a man to his home, you can yourself give nitro-glycerine while sitting by his bedside. In regard to the use of the X-ray. Stand the patient up before the screen. You can see the form of the heart, see the beat, see any dilation. Of course it is very easy to see the working of the left ventricle, left oricle and right oricle, but the right ventricle, for an X-ray examination, lies back of the heart, bringing it out of reach. On this chart the doctor has drawn the line of the right ventricle. But by changing the patient's position and looking at this from the side, the right ventricle will be shown.

DELTA COUNTY.

At the meeting of the County Society, held at Gladstone on the 8th inst., the following members were elected to membership: Drs. William McCallum, George Bjorkman, C. E. Watson, all of Gladstone.

Election of officers resulted as follows: President, D. N. Kee, Gladstone; Vice President, A. L. Laing, Rapid River; Secretary, Harry W. Long, Escanaba; Treasurer, William Elliott. Delegate to State Society, Richard S. Forsyth, Gladstone.

I also wish to announce a regular monthly meeting of the Delta County Medical Society held at Escanaba, Feb. 12th. Papers presented:

1. Lobar Pneumonia, H. W. Banks, Escanaba.
2. Asthenopia, Wm. Elliott, Escanaba.
3. Case Reports, Geo. Bjorkman, Gladstone.

a. Gastric Hemorrhage accompanying pregnancy.

b. Iodoform Poisoning.

c. Septicaemia following abortion.

HARRY W. LONG, Sec'y.

GENESEE COUNTY.

The January meeting of the Genesee County Medical Society was held at Flint, January 27, with the President, Dr. Chas. S. Wheeler, in the chair.

Sixteen applicants were elected to membership, making a total of forty-nine members.

Dr. G. V. Chamberlain was chosen delegate to represent the society on the Board of Delegates of the State Society, and Dr. J. C. Willson, Dr. R. H. Murray, and Dr. J. F. Rumer were appointed by the President as a Legislative Committee.

The afternoon was devoted to the study of the blood. Dr. Albert Lynch presented the practical side of the subject and demonstrated the various methods of clinical examination. Dr. Thaddeus Walker, Hematologist to the Detroit Clinical Laboratory, read a paper on "The Value of Blood Examination to the General Practitioner." Dr. R. H. Murray exhibited some interesting pathological specimens, after which the Society adjourned to partake of a luncheon tendered by the Board of Directors.

H. R. NILES, Secretary.

JACKSON COUNTY.

The following is the program of the January meeting of the Jackson County Medical Society, held January 6, 1903:

Reading of minutes.

Admission of new members.

Payment of dues.

Election of officers and delegates.

President's address—The Medical Profession of Jackson County, Dr. A. E. Bulson, Jackson.

The Etiology of Carcinoma with Special Reference to the Parasitic Theory, Dr. F. A. Baldwin, Ann Arbor.

Observation upon the Technique of Abdominal Surgery, Dr. H. O. Walker, Detroit.

Irrigation Treatment of Gonorrhoea, Dr. Harry S. McGee, Jackson.

R. GRACE HENDRICK, Sec'y.

MECOSTA COUNTY.

The annual meeting of the Mecosta County Medical Society was held in the Big Rapids Club rooms last evening. Officers were elected as fol-

President—Dr. Joseph McNeece, Morley.

Vice-President—T. W. Noble, Remus.

Secretary and Treasurer—Dr. F. C. Terrill, Big Rapids.

Dr. L. S. Griswold, of this city, was chosen as delegate to the State Society meeting.

A paper was read by Dr. A. A. Spoor on the use of the microscope in diagnosis of consumption. It was discussed by Drs. Griswold, Dodge and Terrill. Dr. Dodge presented reports on the use of the X-ray in the treatment of cancer. After the close of the meeting the doctors adjourned to Rodman's cafe, where they were entertained by Drs. Griswold and O'Hara at a "Dutch lunch." Nearly all responded to toasts presented by toastmaster Griswold. Thirteen were in attendance, among them being seven from out of town. Two new members were added to the society, which now numbers 23 members.

R. C. TERRILL, Sec'y.

MONROE COUNTY.

The society met on the afternoon of Jan. 22nd, with Dr. Sissung in the chair. Two papers were read, one by Dr. V. Sissung on the "Etiology of Cancer," and the other by Dr. Root on "Modern Diagnosis." Dr. E. W. Cooper was prevented from being present because of illness, and his paper will be presented at our next meeting.

Drs. Heath, Valade and Root were appointed a committee on "Medical Legislation."

Dr. P. S. Root was elected to represent this society in the House of Delegates.

P. S. ROOT, Sec'y.

ST. JOSEPH COUNTY.

St. Joseph County Medical Society met at the rooms of the Womans' Club, Mendon, Feb. 10. 1903, President Sabin in the chair. The secretary, Dr. Williams, of White Pigeon, was absent and his place was filled by Dr. S. R. Robinson, of Sturgis.

Dr. Ferguson, of Sturgis, read an able paper on pneumonia.

Dr. Knowles, of Three Rivers, read an interesting paper on fractures about the elbow joint. This paper was discussed by T. J. Haines, of Three Rivers; F. W. Robinson and S. R. Robinson, of Sturgis, and Partlad, of Constantine.

Obstetric antisepsis was presented in a well written paper by Dr. Kingsley, of Centreville.

The attendance was good and a good feeling prevails. The next meeting will be at Centreville, March 10.

JOHN R. WILLIAMS, Secretary.

UNION COUNTY.

The officers of the Union County Medical Society are continued unchanged until January, 1904, as follows:

President—John Avery, Greenville.

First Vice-President—N. E. Buchanan, Stanton.

Second Vice-President—F. R. Blanchard, Lakeview.

Third Vice-President—Geo. O. Stanton, Belding.

Fourth Vice-President—L. S. Cratser, Edmore.

Sec.-Treas—H. L. Bower, Greenville.

H. L. Bower was elected delegate to State Convention in June. H. L. BOWER, Sec'y.

VAN BUREN COUNTY.

INFANT FEEDING AND MILK MODIFICATION.

LOREN CURTIS,
Paw Paw.

The literature on this subject has increased so rapidly during the last three or four years, and so many different methods have been devised, that it is impossible to do this subject justice in the limits of a short paper. This article deals with those infants that cannot have breast milk. The real progress made in infant feeding may be summed thus: Human milk being the baby's natural food is therefore its best food. If a child is deprived of the breast it should have cow's milk modified to resemble mother's milk.

There are three substances in human milk with which we have principally to deal, fats, carbo hydrates or sugars and proteids or nitrogenous matters. Arthur V. Meigs, of Philadelphia, claims a great advance was made in laying the foundation of accurate percentage feeding when he found by a series of experiments that human milk never contains more than seven per cent of sugar and from seven tenths to one and one-half per cent of proteids. His paper was read in 1882. Though you will now scarcely find two authorities giving the same percentages of fats, sugars and proteids in either mother's milk or cow's milk, nearly all agreeing that they vary from day to day, but still within certain well defined limits.

Abram Jacobi, of New York, says only one great progress has been made in infant feeding these dozen years, that is, the more or less universal introduction of heating cow's milk or other substances used in infant feeding, and this so long as it is difficult to get pure milk and pure water can hardly be dispensed with. But sterilization and *pasteurization* has been carried out where there was practically no need of it, and probably always injures the nutritive value of the milk.

Holt says, "There is no trouble in feeding an infant, if you can begin when the baby is well."

Rotch, of Boston, is the father of milk modification which, with all its faults, is probably a step in the right direction.

Proprietary foods are not to be used, though they may be all right under certain circumstances.

Nicholas Senn condemns the use of patent splints in the treatment of fracture, saying, practically that a man who can't improvise or make his own splint to suit the individual case, has not the ability to properly treat a fracture, and there is certainly less individualization in the dressing of fractures than in the digestion of an infant.

The milk of a herd is now considered better than that of a single cow, as it varies less.

Forchheimmer, of Cincinnati, prefers the milk of the old long horned common cow to that of the high bread Jersey or Holstein, as they are said to have more resistance to disease.

There is still much discussion concerning the subject whether the infant should have its food made gradually stronger till about the 12th or 15th month, when it can take whole milk, or whether Meigs is right in giving the baby a formula which as nearly resembles mother's milk as possible and continuing this until the child can digest cow's milk.

Since I became interested in milk modification, I have not had what you would call an extensive experience in infant feeding; but I have had sufficient opportunity to try the principles of milk modification to warrant my continuing their use.

I have had considerable difficulty in getting parents to carry out the directions, for as soon as the baby was out of an alarming condition, I would often find that some old woman across the road had recommended some simple mixture of milk and water, and my more elaborate formula was laid aside, unless the child again became worse, as being too much trouble to prepare or the milk sugar *too* expensive.

When I first became acquainted with the idea of trying to give accurate percentage feedings, from the standpoint of a man who isn't a chemist, I confess I was inclined to scoff at the notion; for it is "more pleasing to our vanity to profess skepticism than to avow ignorance." But I now believe, even from a limited experience, that milk, cream, boiled water, lime water and sugar of milk combined carefully, according to some adopted scale of percentages, is more scientific

and will lead to better results than the hit and miss plan of former years.

I know of an instance where a puny baby in a critical condition was taking a mixture of milk, cream and water in such proportions that the food was actually stronger than cow's milk. This is something liable to occur in the practice of any one who is not systematic. You see the baby day after day, and it is getting worse, the parents are distressed and you have exhausted your expedients, you have told the mother or nurse to add a little more sugar to make it gain weight or a little more cream to overcome constipation and they, having no definite formula to go by, have used their own judgment and put in maybe more than you intended, and by and by you may discover, after the funeral, that you might better be thoroughly systematic in feeding infants if you wish to be successful in difficult cases.

In the feeding of infants, as in everything else, if you wish to succeed you must individualize, what one baby will thrive on, another will not. But the question is, how are you going to individualize? When you see a baby, how are you going to tell whether he is getting too much proteids or not enough? How are you going to know that he isn't getting enough fat or enough sugar, and when you guess at it and guess correctly, then how are you going to increase it's proteids or fats or sugars in any reasonable manner unless you have some one adopted scale of percentages to follow in making your food. Even if the scale of percentages is not scientifically correct, it will be better than an unsystematic plan.

It is not difficult to feed a healthy infant, if the baby is in an intelligent family, and that I think is why there has been so much bitter discussion in regard to the matter. It is possible that a healthy child thrieves in spite of its method of feeding. Just as man, sick with a self limited disease, when he is well again you can't always tell whether your medicine cured him.

All the specialists (Rotch, Cotton, Holt, Davis, Smith, etc.,) on the subject seem to have slightly different methods of modifying cow's milk to resemble breast milk, and they all claim to be more or less successful. It is all very well for a popular city practitioner to call at a palatial residence, go to the nursery where a well trained nurse gives him a correct report of the infant's condition, write out a prescription for the baby's food, for say: 3 37/40% of fat, 6 15/16% of sugar and some other hair splitting percentage of proteids; have this taken to a Walker Gordon Laboratory and the food comes already for the baby, as accurate as modern science can prepare it. Now let the same man go to a family in moderate circumstances and he must vary his method, and again, if he visits the children of the poor, he can't advise about cream mixtures where they are fortunate to get milk.

Now the method that I follow is this: If I see a baby at the breast and it is not doing well, I get some of the mother's milk in a test tube, let it stand 24 hours, and make a simple examination. Notice the amount of cream rising on the milk, the color of the milk, take the sp. gravity and the reaction.

High fats lower the sp. gravity. Low fats raise the sp. gravity. A high sp. gravity with high fats (and you can judge by the eye, see the amount of cream) would indicate excessive proteids. Sugar seldom gives any trouble. Now if by changing the mother's habits or her environments you can make her milk better, and the baby does well, you have accomplished your object. But if the baby is failing and I can not find another cause, I would take it away from the breast and begin with a low milk modification, that I felt sure the baby could digest, then I would gradually increase the percentages of fats, sugar or proteids until I had something on which the baby was gaining weight, and I would insist on seeing the child once a week.

Holt says, "Regarding the exact indications according to which the fat, sugar and proteids are to be varied, much is yet to be learned." He summarizes as follows: "If not gaining in weight without special signs of indigestion, increase the proportion of all the ingredients, if habitual colic, diminish the proteids. For frequent vomiting after eating, reduce the quantity, for the regurgitation of sour masses of food, reduce the fat and sometimes also the proteids, for obstinate constipation increase both fats and proteids. Though it is probably a mistake to increase the fats to over 4%.

The scale of percentages which I follow is, mother's milk

F.—4% S.—7% P.—1½%.

Cream is 16% fat, approximately.

Cow's milk contains about F—4%, S.—4%, P.—4%.

In infant feeding it is convenient to make use of a 12% and an 8% cream. Two parts of cream and one milk will give a 12% cream and two parts of milk and one of cream will make an 8% cream. By diluting a 12% cream it has been found that you can get a large number of formulas, the fats and proteids being in the ratio of 3 to 1. By diluting an 7% cream you get formulas, the fats being to the proteids as 2 to 1. By diluting plain

milk the ratio is about equal. These various cream mixtures contain about 4% sugar and by remembering that 5 grains to the ounce make a 1% solution, you can add your milk sugar and make it any percent you desire.

Now by using the above data and some common arithmetic you can by diluting with boiled water make a large number of formulas that are approximately correct, and you know what the baby is taking. But of course the baby may be so obstinate that you may have to add lime water or starch in the form of barley water or even raw beef juice, or he may thrive only on oatmeal gruel, or you may have to throw away the whole theory and give him plain cow's milk.

IN CONCLUSION.

Children are sometimes so easily fed that it misleads us in regard to the excellence of the method of feeding.

That the method should be broad enough to give ample opportunity to individualize.

That the ideal method is probably not yet perfected.

That it will be perfected not in the laboratory but by the bedside.

In the language of Meigs, "Could any field in medicine make fairer promises to those who will interest themselves in it than one which offers the opportunity to prevent rather than cure disease."

It seems to me that milk modification gives us a chance to practically fulfill all the well known six essentials of infant feeding. 1st. The food must contain all the ingredients of mother's milk. 2nd. It must be administered in form suitable to the physiological requirements of infant digestion. 3rd. The quantity should represent the equivalent of from 1 to 3 pints of mother's milk during 24 hours. 4th. It should be partly animal. 5th. It should contain the antiscorbutic element raw. 6th. It must be sterile.

Milk modification is not quite so easy for the doctor or for the parents as some of the old methods, but if we are to believe those men who have had the greatest experience with children it undoubtedly saves funeral expenses, which is about the only thing the public tolerate medical men for anyway.

WAYNE COUNTY.

There are three hundred and twenty-six paid members in the Wayne County Medical Society, thus giving it seven delegates to the Michigan State Medical Society. On January the fifteenth the following were elected as delegates: W. F. Metcalf, F. B. Tibbals, G. W. Moran, A. D. Holmes, David Inglis, H. A. Wright, E. L. Shurly.

Bay County, Lapeer County and Mecosta County Medical Societies seem to be the only county societies that wish to cooperate with the Wayne County in the legislative matters. Others should respond.

During January the following papers were read:

"The X-rays in the Treatment of Malignant Disease, with Lantern Slide Demonstration," by Dr. Wm. A. Pusey, of Chicago.

"Heredity vs. Bacteriology," by Dr. O. C. Brown.

"Sanitarium Treatment of Pulmonary Phthisis," by Dr. E. L. Shurly.

Heart Disease—

"Etiology and Pathology," by Dr. J. F. Bennett.

"Diagnosis and Prognosis," by Dr. Wm. M Donald.

"Treatment," by Dr. F. B. Ambler.

Genito-Urinary Surgery.

"Surgery of the Kidneys, Ureters and Bladder," by Dr. Hal C. Wyman.

"Surgery of the Prostrate and Urethra," by Dr. F. B. Walker.

The different sections presented the following:

Surgery—"Chronic Proctitis," by Dr. J. A. MacMillan.

"Acute Yellow Atrophy of the Liver as a Sequel to Surgical Operation," by Dr. Max Ballin.

Internal Medicine and Pathology—

"Cystic Degeneration of the Kidneys," by Dr. J. E. Clark.

"Pathology of Cystic Degeneration of the Kidneys," by Dr. Heneage Gibbes.

Obstetrics and Gynaecology—

"Instrumental Obstetrics," by Dr. J. E. Davis.

Eye, Ear, Nose and Throat—

"Malignant Disease of the Ear," by Dr. Don M. Campbell.

*SOME OBSERVATIONS IN THE USE OF OBSTETRICAL FORCEPS.

JAMES E. DAVIS.
Detroit.

The expulsion of the products of pregnancy is to nature the Sum Bonum of her surgical operations, and provided with conditions of normality in physiological processes, maternal efficiency and conformity in type of product it is necessary, for

*Read before the Section on Obstetrics and Gynaecology of the Wayne County Medical Society.

ideal results, to have only asepsis and non-interference on the part of obstetrician and nurse. The obstetrician, then, is nature's chief assistant in her first capital operation, and in this work he commands the advantages of what is to-day a creditably developed art, the master production of which is the forceps.

If parturition is the most frequent of operations and the occasion of very certain responsibilities, it follows that the highest possible proficiency is necessary in the obstetric art. As the forceps is used and indicated so frequently, and their manipulation is of such a varied character and always fraught with the double responsibility of answering for the life of the child and mother, or for the health of one or both, it is ever profitable to review or enlarge upon the specific knowledge possessed. This essay is an outline study of the contraindications, indications and application of the forceps. It is necessary, in treating a subject of this character, to list a certain number of classic teachings. These I shall express as tersely and appropriately as possible. The *anatomical* contraindications are:

(a) Contracted pelvis, e. g., when the conjugate vera is less than 3¼ inches.

(b) A fetal head that is too large or too small, because the diameter of the forceps averages 2¾ inches.

(c) Too great a disproportion between the pelvic outlet and the fetal head.

The *physiological* contraindications are:

(a) Undilated os uteri—except when maternal or fetal life is threatened, or there is likely to be a rupture of the uterus or, in rare instances, of a partly dilated rigid os.

(b) Unruptured membranes.

The *mechanical* contraindications are:

(a) A non-engagement of the head at the brim with its largest diameter in the interspinal line—except when rupture of the uterus exists or is impending.

The *forceps* is indicated in:

(a) Protracted labor.

(b) When general or local conditions cause danger to the mother.

(c) When there is danger to the child.

(d) When the foregoing contraindications are not present.

The forceps is essentially a traction instrument, but it must be remembered that traction exerted upon the fetal head within the parturient canal causes a compression force equal to about one-half of the traction force. The mission of the forceps is to increase the vis a tergo, and the problem before the obstetrician is, finding the direction of least resistance, and not the making of an artificial accommodation in diameters of the passenger and passage. The greatest and most frequent error made is that of missing the line of least resistance and thereby directing the natural and artificial propellants toward an impossible exit. The disproportion of head and pelvis is surprisingly corrected by the moulding process, which is nothing more than expellant force in the direction of least resistance, plus correct compression force. If it were always possible to direct traction in the line of least resistance and have the compression force transmitted correctly, the value of the forceps would be greatly enhanced.

The most important indications for the use of the forceps is in cases of feeble action of the uterus and accessory muscles, due to exhaustion; when to apply the forceps depends upon good judgment based upon a careful consideration of the expulsive and resistant force. If the resistant forces are plainly overbalancing those of expulsion and there is no indication that any change will take place, it is time to assist. The habit of waiting exactly two hours and, if no progress has been made, then proceed, is not scientific. It happens very frequently that most excellent results can be secured by administering one-eighth to one-quarter grain of morphine sulphate at the time when progress has ceased. After this the patient will rest and sleep four or five hours, then resume and terminate her labor promptly and easily. This procedure is indicated most frequently when there is a secondary diminution of the labor pains, that is to say, the uterus at first contracts vigorously, but later becomes fatigued because of some obstacle which can be removed successfully by a longer continuance of the regular contractions.

The exact position of the head should nearly always be known before the application of the forceps is made. The best positive index is the ear; the direction of its rim will be toward the occiput. Usually this can be ascertained without difficulty if the patient is anaesthetized and the full hand is passed high enough.

Sufficient time and care should be observed when introducing the forceps blades to secure conformity with the sides of the pelvis or the sides of the fetal head. If the blades cannot be locked easily a readjustment should be made.

The question of whether Smellie's rule of applying the blades to the sides of the fetal head, or Saxtorph's, which applies them to the sides of

the pelvis, is preferable, is yet debatable. Continental obstetricians follow Smellie, while English obstetricians follow Saxtorph. The application to the sides of the pelvis is easier and safer for the average operator.

There appears to be a prevailing habit with inexperienced operators to hurry unnecessarily when applying forceps and also when delivering. This multiplies dangers for both mother and child, excepting where some special indications are present. Usually there is not a single valid objection to at least one hour being used for this work, during which time the blades may be unlocked and readjusted one or more times if necessary, and the operator should feel no embarrassment whatever in so doing. Not infrequently an earlier and easier delivery with less injury to mother and child will be obtained when a second or third application is made.

The action of the forceps is that of a tractor, compressor, lever and rotator. The two first named forces are always present and inseparable. Tractile force should never exceed eighty pounds, and should always be exerted in the axis of the parturient canal. The compression force is of utmost importance, as the child's life is directly endangered if this force is either too great or too long continued. I make it a habit when exerting tractile force to have each application of short duration, and in the pause the blades are unlocked and the direction of the blades observed. This is done for the purpose of determining the line of least resistance.

The short intermitting compression force will insure a much greater degree of safety to the child, and the frequently suggested axis of the pelvis makes it much easier to avoid the resistant forces, thereby reducing the required tractile and compression forces.

It is taught by some that the lever force is most important, and some demonstrations I witnessed made me follow, for a time, what is a pernicious application of the same. The method consists in swaying the instrument handles from side to side just as far as the soft parts would permit, thereby making a fulcrum of the soft parts at each side. The result followed of bruised pelvic outlets and neglect of the tractile force, frequent injuries to the child's skull, and rapid delivery of the child. It is not permissible to use more than the slightest pendulum movement, and this must be coincident with traction.

It is always a dangerous procedure to use rotary force for correcting faulty positions. If used at all, a perfect understanding must be possessed of all the prevailing conditions. Natural rotation must, evidently, be impossible, and the operator must be sure of his skill. There are occasions, when the head is presenting at the perineum, that a little rotation may save a tear or aid somewhat in extraction. The straight forceps is preferable to the double curved instrument for rotation.

I find an advantage in removing the forceps (if not held too tightly by the tissues) before the head has cleared the perineum. In all manipulations with the forceps the utmost advantage is obtained from a cool, calculating control of one's self. The work is a master study in mechanics, and demands, at all times, the highest perfection of operative skill.

HUGH MULHERON, Secretary.

WASHTENAW COUNTY.

Prof. Geo, Dock, of the University of Michigan, has taken his family to Los Angeles, California, for a few weeks' vacation.

Communications.

PRELIMINARY REPORT OF FIRST FIFTY CASES PERSONALLY TREATED BY THE X-RAY.

Detroit, February 14, 1903.

THE EDITOR: I respectfully submit the following report:

In estimating the absolute value of this report, it is only fair to the treatment to state that thirty-eight of these fifty cases were inoperable, recurrent or hopeless, because of the advanced stage of disease at beginning of the treatment, but in no case was the ray allowed to be substituted for the knife: 37 were carcinoma, both deep and superficial; 13 sarcoma; 19 females and 31 males, ranging in age from 18 to 84. Over a year has elapsed since the largest percentage of these cases have been discharged.

	Cases.	Per cent.
Ending fatally	10	20
Discharged unimproved, or discontinued treatment	5	10
Referred for operation	4	8
Improved and still under treatment	8	16
Referred to other operators of X-ray	4	8
Clinically cured	19	38

H. R. VARNEY.